

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 12,8a

2. Edition

En

PE 8 A 95 D 320 LS 2389 RQ 250/1250 AB 845 DR
 LS 2421 RQV250-1250 AB 846 DR ./.

supersedes
 company
 engine

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9+0,1 (2389) mm (from BDC) cyl. 8
 1,7+0,1 (2421)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

RQ..845DR

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check	Full-load speed regulation						Idle speed regulation				Torque control	
	Setting point		Test specifications		Setting point		Test specifications		Control rod travel		Control rod travel	Control rod travel
Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	rev/min	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12	
600	19,6-20,4	600	20,0	1275	18,8-19,2	560	0	180	9,4-11,6	800	19,8-20,0	
1300	Breakaway lever ca. 49°)	(Control lever ca. 49°)	1320	11,8-16,9	1370	0 - 10,6	250	7,5-10,6	350	3,3- 6,7	950	19,2-19,4
				1450	0	460			0	1000	19,2	

Torque-control travel

0,2

on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
1	2	3	4	5	6	6	7	mm
1250	114,5-116,5 113,5-117,5	0,5 bar	800	118,5-122,5 117,5-123,5	250	7 mm RW		
		0 bar		96,5-100,5 95,5-101,5				

Checking values in brackets

11.74

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Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
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B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	mm 3	4	5	mm 6	7	8	mm 9	10	mm 11
ca.50	1270 1320 1400	14,4-17,4 9,8-14,4 1,0- 8,6	- - -	ca.13	50 150 250 350 410	7,7-11,0 6,6-9,8 4,2-7,2 0 -3,4 0	200 480 800 1270 1420- 1510	0,5-1,2 3,2-4,0 4,8-5,2 8,3 End (11)		
(5)										

Dimension 0 mm / 1200 U/min

0,4mm/ 600-900 U/min

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
rev/min	1	2	3	4	5	6	7	8	
1250	114,5-116,5	0,5 bar 0 bar	800 500	118,5-122,5 96,5-100,5	250	7 mm RW Change-over point	80-100U/min		

Checking values in brackets

1290-1305

*1 mm less control rod travel than col. 2

Cam sequence and angular cam spacing:

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 each 45°

Pay attention to RQ and RQV governors in accordance with VDT-WPP 001/4 6/7/8

Supplements and BMP 111/41!

D) Adjustment test at 700 min^{-1} - decreasing pressure:

Setting 0.24-0.25 bar = 0.2-0.3 mm decrease in control-rod travel

Measurement 0.15 bar = 0.9-1.1 mm decrease in control-rod travel

Adjust by changing initial tension of helical spring after noting down max. control-rod travel for preceding adjustment at $n = 800$.Position adjusting sleeve in LDA (manifold-pressure compensator) at 800 min^{-1} - override LDA such that it makes contact, then turn back 2 turns and secure!When performing check, increase values for Section C, Columns 2 and 5 by $\pm 1 \text{ cm}^3$!

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps ①A

and Governors

40

VDT-WPP 001/4 STE 1,9a
Edition 9.64

PES 2 A 70 C 310 RS 2027

EP/RSV 200-1100 A1 B147 DL

En

supersedes

company Steyr-Daimler-Puch
engine WD 209 (30 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
	200	6				

Adjust the fuel delivery from each outlet according to the values in ■■■■■

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.62	1100 12 1130 9,2 1160 5,9	without auxiliary spring	ca.27	200 6 100 19 - 21 200 5,7-6,3 350 1 - 3,5 450 0 - 2,8 600 0 - 1	1080 0 900 0,4-0,6 700 0,9-1,1 600 1,7-1,9 300 2,1-2,3	0 0,4-0,6 0,9-1,1 1,7-1,9 2,1-2,3
2a	1130 8,4-9,8 1160 4,2- 7 1300 0 - 1	with auxiliary spring				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
1080	43,0-45,0	1110-1130	500 700 900	59,0-62,0 50,0-53,0 45,5-48,5	110	15,2-15,8	RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 MB 3,8 b
Edition 5.72

En

PES 4 A 80 C 410 RS2094,2206	EP/RSV250-1300A1B424D(1)
.. RS2094,2206	EP/RSV600-1225A1B424D(2)
(D)..RS2094	EP/RSV300-1300A1B424D(3)
..RS2094	EP/RSV300-1400A2B424D(4)

supersedes DAI3,8b
company (6,68)
engine Daimler-Benz
OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" u. "D" cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	②	3	4	3	6
1000	6	2,2 - 3,0				
	9	5,5 - 6,0				
	15	11,5 - 12,8	0,4			
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	③ Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9		
ca.73	1300	16,0				ca.26	250	6,0		
	1340	11,8					100	19 - 21	1280	0
	1380	6,0					250	5,7-6,3	800	0,7-0,9
	1360	7,4-10,2					400	2,0-4,0	300	1,3-1,5
	1390	3,4- 6,5					600	0 - 1		
②a	1500	0 - 1								
			without auxiliary spring							
			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat		③a Fuel delivery characteristics		Starting fuel delivery		⑤ Idle stop Control rod travel mm	④a Control rod travel mm
	rev/min	cm³/1000 strokes	Note changed to 3	rev/min	cm³/1000 strokes	6	7	
1280	55,0 - 57,0		1320	900	53,5-56,5	100	13,2-13,8	
				500	47,5-50,5			
(2)**	800	47,0 - 49,0	1240 (EP/RSV)	1200	54,0-57,0	100	13,2-13,8	
(3)***	1280	55,0 - 57,0	1325:0,5-1,0	900	52,0-55,0	100	13,2-13,8	
(4)	****	300-1400	A2B424D	500	52,5-55,5			
	1380	ca.48,5	1420 (EP/RSV)					

Checking values in brackets

** **** 600-1225 A1B424D

* 1 mm less control rod travel than col 2

*** **** 300-1300 A1B424D **** with governors

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Testoil-ISO 4113

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

600-1225 (2)

ca.72	1225	16,0	*			ca.37	600	6,0		
	1270	12,0					100	19 - 21		
	1320	6,7					600	5,7-6,3		
	1300	7,3-10,2	**				700	1,4-3,6		
	1370	1,0- 4,2					800	0 - 1		
	1450	0 - 1								

300-1300 (3)

ca.73	1300	16,0	*			ca.27	300	6,0	1280	0
	1350	10,6					100	19 - 21		
	1390	4,6					300	5,7-6,3	900	0,4-0,6
	1360	7,5-10,5					450	1,4-3,6	400	1,2-1,4
	1400	2,6- 5,6	**				600	0 - 1		
	1500	0 - 1								

300-1400 (4)

ca.57	1400	16,0	*	without auxiliary spring		ca.22	300	6,0	1380	0
	1460	12,0					100	19 - 21		
	1520	6,8					300	5,7-6,3		
	1500	6,8-10,0	**	with auxiliary spring			500	1,8-3,9	500	0
	1600	1,8-4,3					700	0 - 1		
	1720	0-1								

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 IHC 2,2 f

Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-750 A 4/18
 LS 105 Z
 LS 105 T

supersedes 24.11.59
 company I H C
 engine DD 132
 DD 132S
 DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
ca.45	750	16	ca.22	250	5,5	730
	800	9		100	19 - 21	300
	830	4		250	5,2-5,8	
	800	7,5-10,5		300	3,1-4,2	
	830	3 - 6,5		350	0 - 2,6	
	880	0 - 2,4		450	0 - 1	
2a	950	0 - 1	with auxiliary spring			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop	6	Rotational-speed limitat	3a	Fuel delivery characteristics	Starting fuel delivery	5	4a	Idle stop
Test oil temp 40°C (104°F)	rev/min cm³/1000 strokes	Note changed to) rev/min	rev/min	rev/min cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
730	30,0-32,0		760						
730	42,5-44,5		760						
730	34,5-36,5		760						

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 IHC 2,2 k 2
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-1200 A 2 A 18

supersedes 18.11.60
company I H C
engine D'J 132-D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,7 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.60	1200	16	without auxiliary spring	with auxiliary spring	ca.29	250	5,5	1180	0	
	1350	8,8				100	19-21	500	0	
	1440	3,8				250	5,2-5,8	300	1,2-1,8	
	1350	7,2-10,2				350	3-4			
	1400	3,8- 7,8				400	1-3			
	1500	0 - 3,2				450	0-2			
	1600	0 - 1				550	0-1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note changed to rev/min	3a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	5	4a Idle stop Control rod travel mm
rev/min 1 2	3	4 5	6	7	8 9
1180 32,5 - 34,5	1210				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

A8

A8

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 5,4e(5,4f)

Edition 10.64

En

PE 6 A 65 B 312 LS 110 z RQ 200/1300 A 293 D

supersedes 2.61
company Büssing
engine U 5Torque control: 0.65 mm shims must be added
to achieve 0.5 mm torque-control travel.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,2			
	6	1,4 - 2,1				
	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14-14,8	1250	14,4	1320	14 - 14,4	430	0	100	6 - 8,1	800	15,8-16
				1340	8 - 14			150	5 - 7,2	1000	15 - 15,4
				1360	1 - 11			200	3,4- 6	1150	14,4-14,7
				1380	0 - 8			280	0 - 3		
				1430	0			330	0		

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At 1320

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		2	Control rod stop rev/min	3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
rev/min	cm³/-1000 strokes	1	3	4	rev/min	cm³/-1000 strokes	5	rev/min	cm³/1000 strokes/mm	Control rod travel
1300	54,5 - 56,0		500		500	56,5 - 59,5				
					800	58,0 - 61,0				

Checking values in brackets

A9

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A9

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 HEN 4,1d
(4,1e)

Edition 3.69

En

PE 4 A 80 B 412 RS 375
RS2024

RQ 200/1300 A 300
A 419

supersedes 10.68
company Henschel
engine 517 D 4 L

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RS735

Port closing at prestroke 1,85 + 0,1

mm (from BDC)

RS 2024=1,9 + 0,1

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel mm 11	Control rod travel mm 12
450	15,6-16,4	450	16	1300	15,6-16	420		100	5,5-7,4		
				1320	11 -15,2			150	4,4-6,4		
				1350	4,8-12			200	3 - 5		
				1380	0 -7,8			250	1 - 3,2		
				1440	0			320	0		

Torque-control travel
and lever assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7	Control rod travel mm 6	Control rod travel mm 7
1280	79,0 - 81,0	1280			100	mind. 13,4		

Checking values in brackets

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 IHC 2,2 h

Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250 - 1000 A 4/18
LS 105 Z
LS 105 Y

supersedes 12.62
company I H C
engine DD 132
DD 132 S
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
		2	3 cm³/100 strokes				
1000	12	4,5 - 5,0		0,3			
	6	0,5 - 1,2					
	18	8,3 - 9,1					
200	6	0,3 - 0,9					

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.58	1000	16	without auxiliary spring	ca.22	250	5,5	750	0		
	1050	8,4			100	19 - 21	400	0		
	1080	3,5			250	5,2-5,8	300	1,2-1,8		
2a	1050	6,2 - 10	with auxiliary spring		300	3 - 4,5				
	1100	1,2 - 3,2			350	0 - 2,8				
	1200	0 - 1			450	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 re/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 Idle stop	4a Control rod travel mm	
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
750	30,0-32,0	1010						
750Z	42,5-44,5	1010						
750Y	34,5-36,5	1010						

Checking values in brackets

* 1 mm less control rod travel than col. 2

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A 15

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 STE 2,7a
Edition 1.68

En

PES 4 A 65 C 410 PS 1113

EP/RSV 250-1275 A1 B183 DL

EP/RSV 250-1200 A1 B255DL*

Special setting of governor see page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes
company
engine

9.64
Daimler-Benz
WD406
(47,5PS)
WD 406a
(50 PS)

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
	18	9,7 - 10,6				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1275 A1 B183 DL

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
ca.70	1275	12	ca.27	250	6	1180 0
	1300	9		100	19 - 21	1000 0,5 - 0,7
	1330	5,2		250	5,7-6,3	800 0,9 - 1,1
	1320	5 - 8,5		350	3,7-4,8	500 1,2 - 1,4
	1350	2,8-4,3		450	0 - 3	
	1450	0 - 1		600	0 - 1	
2a						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1180	36,5-38,5			1210-1230	1000 38,0-41,0 39,0-42,5	100 13,4-14,1			./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings

250 - 1200 A 1 B 255 DL

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1220 1240 1260	12,0 9,5 7,0				ca.26	250 100 250 400 600	6,0 19-21 5,7-6,3 1,8-3,8 0 - 1	1200 800 500	0 1,0-1,2 1,5-1,7
(5)	1250 1300 1400	7,8-9,0 2,2-4,1 0 - 1	without auxiliary spring with auxiliary spring							

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitation:	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1200	41,7 - 43,7	1220-1235	1000 500	42,7-45,7 47,0-50,0	100	13,5-14,1		

Checking values in brackets

*1 mm less control rod travel than col. 2

As opposed to WPP 001/4 - 1st Supplement - the special setting for the governor B 183 DL is as follows:

1. Adjust governor spring (corresponds to (1))
2. Pre-adjust full-load delivery and note down control-rod travel (roughly corresponds to (2))
3. Screw in torque-control retainer until control-rod travel is 1 mm more than measured under 2. (roughly corresponds to (3))
4. Final adjustment of full-load delivery by screwing back full-load stop screw (roughly corresponds to (2))
5. Adjustment of breakaway (corresponds to (6)) (3)
6. Test torque control and fuel-delivery characteristics (roughly corresponds to (3a))
7. Idle adjustment (corresponds to (4))
8. Check starting fuel delivery/adjust with control-rod stop (corresponds to (6a))

As regards the information given in parentheses, please consult the test instructions.

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 HAN 2,8 b 1

Edition 4.64

PE 4 A 60 C 310 LS 1088 EP/RSV 250-1150 A 1 B 157 DL

supersedes
company Hanomag
engine D 28 CR
D 28 CK

B 158 DL
EP/RSV 250-1100 A 1 B 172 DL
B 179 DL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery		Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
		2	3				
1000	12	4,5 - 5,0		0,3			
	6	0,5 - 1,2					
	18	8,3 - 9,1					
200	6	0,3 - 0,9					

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

EP/RSV 250-1150

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
ca .68	1150	12	without auxiliary spring	ca .31	250	7,5	1130	0		
	1180	9			100	19 - 21	1000	0,7-0,9		
	1210	6,2			250	7,2-7,8	800	1,4-1,6		
2a	1180	8,5-10	with auxiliary spring	400	400	4 - 6	350	1,4-1,6		
	1220	5 - 6,5			500	0 - 4				
	1300	0 - 3			650	0 - 1				
	1350	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)	rev/min 1	cm³/1000 strokes 2	6 Rotational-speed limitat Note changed to 1 rev/min 3	3a Fuel delivery characteristics	rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle	5 rev/min 6	cm³/1000 strokes 7	4a Idle stop Control rod travel mm 8
1130	40,7-42,7		1160-1180	800 500	46,7-49,7 46,0-49,0					./.

Checking values in brackets

* 1 mm less control rod travel than col 2

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The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm			
ca.65	1100	12	without auxiliary spring	ca.31	250	7,5	1080	0	1000	0,4-0,6			
	1130	9,5				100	19-21	800	1,2-1,4	350	1,2-1,4		
	1160	6,7				250	7 -7,8	700	0 - 1	550	0 - 3		
	1110	11 -11,8				400	4 -5,6	700	0 - 1	1110	11 -11,8		
	1160	5,6-7,6				550	0 - 3	700	0 - 1	1160	5,6-7,6		
	1220	2 -4,2	with auxiliary spring			700	0 - 1	700	0 - 1	1220	2 -4,2		
	1320	0,3-1				700	0 - 1	700	0 - 1	1320	0,3-1		

1A

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop
Test oil temp. 40°C (104°F)	rev/min	cm³/-1000 strokes	Note: changed to ...)	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1080	40,2-42,2	1110-1130	700 400	45,2-48,2 43,5-46,5	The value measured at n 700 must be 4 - 5 cm³/1000 strokes higher than that measured at n 1080.	700	700

*1 mm less control rod travel than col. 2

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure (g p.)

Pump/governor	Setting (g p.)	Measurement bar	Control rod travel-diminution difference mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 BOS 5,4 i
Edition 9.64

En

PE 6 A 65 C 312 LS 1009 EP/RSV 250-1350 A5B 409 D
184 D

supersedes
company
engine

Büssing
U 5 (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,9 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.59	1350 16 1400 11,8 1450 6,8	without auxiliary spring	ca.19	250 6 150 19 - 21 250 5,7 - 6,3 350 4,4 - 5,2 500 0,5 - 3,4 650 0 - 1	1300 0 1200 0,4-0,6 1000 0,9-1,1 400 0,9-1,1	0 0,4-0,6 0,9-1,1 0,9-1,1
(2a)	1450 4,8-8,4 1530 1,1-3,5 1650 0,3-1,0	with auxiliary spring				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limit Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	rev/min	7	8	9
1350	57,0-59,0		1370	1100 500	61,0-64,0 60,5-63,5		To be specified by customer		

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications

Fuel Injection Pumps ①A

and Governors

40

VDT-WPP 001/4 HAN 2,1 k
Edition 3.67

En

PE 3 A 60 C 410 LS 1135

EP/RSV 250-1200 A2 B209DL
B241DL

supersedes 9.64
company Hanomag
engine D 21 CR

EP/RSV 250-1300 A2 B214DL ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,4			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

250-1200

① Degree of deflection of control lever	② Control rod travel mm	③ Control rod travel mm rev/min	④ Intermediate rated speed rev/min	⑤ Lower rated speed rev/min	⑥ Torque control rev/min
1	2	3	4	8	10
ca. 51	1200	16,0	without auxiliary spring	ca. 22	250
	1280	10,7			150
	1350	5,1			250
②a	1300	7,5-10,2	with auxiliary spring		450
	1325	4,8- 8,6			600
	1400	2,7- 4,4			800
	1570	0 - 1			1090
					0
					1000
					0,3
					800
					1,0-1,1
					500
					1,2-1,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop rev/min	④a Idle stop Control rod travel mm
1	2	3	4	5	6
1180	42,5-44,5	1220	800 500	47,2-50,2 47,0-50,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control		
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
ca.54 ⑤	1300	12,0	without auxiliary spring	ca.23	250	6,0	1280	0	1100	0,2-0,4	
	1350	8,5			150	19 - 21	250	5,7-6,3	900	0,8-1,0	
	1390	5,6			450	2,3-4,2	700	0 - 1	400	1,0-1,2	
	1340	8,6-9,7									
	1400	4,2-6,0	with auxiliary spring								
	1450	2,2-4,0									
	1600	0,3-1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitation	(3a) Fuel delivery characteristics		Starting fuel delivery		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1280	42,7 - 44,7	1320	900 500 ⑥a	45,2-48,2 45,0-48,0				

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure (g.p.)

Pump/governor	Setting (g.p.)	Measurement bar (g.p.)	Control rod travel-diminution difference mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Testoil-ISO 4113

**(2) Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

VDT-WPP 001/4 KHD 16,0 e

2. Edition

En

PE 12 A 75 C 520 RS 1100 RQ 200/1150 AA 477 D
 AA 520 D

supersedes	2.69
company	KHD
engine	F 12 L 614(250PS)
	F 12 L 714(290PS)
	F 12 L 714(270PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
	200	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

RQ 200/1150 AA 477 D

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1130	13,5-14,1	1130	13,4	1150	13,2-13,4	440	0	100	6 - 8	300	16 - 21
				1160	11 - 13,4			200	3,2-5,8	400	15,8-16,2
				1200	0 - 9			300	0 - 2	600	15,3-15,6
				1250	0			340	0	1000	13,9-14,2

Torque-control travel
on flyweight assembly dimension a =

0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		3a	Fuel delivery characteristics			3b	Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes		rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	7	8	9	10	11	12
1130	69,0 - 71,0			600	1000 600	72,0 - 75,0 76,0 - 79,0				614 - 250 PS	

Checking values in brackets

4.73a

Testoil-ISO 4113

B Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel mm	Control rod travel mm	rev/min	rev/min		Control rod travel mm	Control rod travel mm			
1100	13,5-14,3	1000	13,9	1150	13,7-13,9	430	0	100	6,0-8,1	400	15,8-16,2
				1180	4,5-12,0			200	3,5-6,0	800	14,7-15,0
				1200	0 - 9			300	0 - 1,8		
				1250	0			330	0	1000	13,9-14,2

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery idle speed	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min
1130	88,5 - 90,5	600	900	91,7 - 94,7	714 - 290 PS
			600	94,0 - 97,0	
1130	80,0 - 82,0	600	1000	80,5 - 83,5	714 - 270 PS
			600	82,5 - 85,5	

Checking values in brackets

Testoil-ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement		Control rod travel diminution difference (1)
	Gauge pressure	bar	Gauge pressure = bar	mm

Notes

(1) when n =

En

rev/min and
gauge pressure

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HAN 3,3 c

Edition 11.65

En

PE 4 A 70 C 412 RS 1090 RQ 250/1425 AB 572 DL
 RS 1090Y RQ 300/1425 AB 572 DL

supersedes
 company: Hanomag
 engine: D 351
 D 351 ML
 D 351 MLA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9+0,1
 Port closing at prestroke 2,5+0,1 mm (from BDC)

...S 1090
 ...S 1090 Y

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1425 AB 572 DL

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
550	15,6-16,4	550	16	1425 1450 1500 1550	14,4-14,5 8,0-13,9 0 - 7,3 0	500	0	100 200 300 400	6,3-8,1 4,9-7,0 2,2-4,4 0	1000 100 1200 1300	15,8-16,0 15,2-15,6 14,6-15,0 14,5

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
1400	51,0 - 53,0		500	1000 500	55,0-58,0 51,0-54,0	100	mind. 16 mm RW
PE ... S 1090 + RQ 250/1425 AB 572 DL		+ RQ 300/1425 AB 572 DL					. / .

Checking values in brackets

Testoil-ISO 4113

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B1

B. Governor Settings

RQ 300/1425 AB 572 DL

HAN 3,3 c

-2-

Checking of slider		Full load speed regulation						Idle speed regulation						Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel		Control rod travel		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
550	15,6-16,4	550	16	1425	14,0-14,4	500	0	250	6,5-8,1	1000	15,8-16,0				
				1450	8,0-13,0			300	4,2-6,8	1150	15,1-15,4				
				1480	0 - 9,2			350	1,2-4,0	1250	14,4-14,8				
				1540	0			400	0						

Torque-control travel
on flyweight assembly dimension a =

0,5 mm

0,05

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F)				Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed			
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	Control rod travel		
1	2	3	4	5	6	7	8	9	10	11	12		
1400	55,0 - 57,0		500		1000	56,5 - 59,5		700	57,0 - 60,0	100	mind.16 mm RW		
						500	51,5 - 55,5						

Checking values in brackets

B. Governor Settings

Checking of slider		Full-load speed regulation						Idle speed regulation						Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel		Control rod travel		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F)				Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed			
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	Control rod travel		
1	2	3	4	5	6	7	8	9	10	11	12		
1400	60,0 - 62,0		500		1000	64,0 - 67,0		500	58,0 - 61,5	100	mind.16 mm RW		
pump	...S 1090 Y RQ 300/1425 AB 572 DL												

Checking values in brackets

Testoil-ISO 4113

B2

B2

En

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,10

Edition 2.67

En

PE 6 A 75 C 412 RS 1069	RQ 200/1300 AB 576 DL
RS 1069	RQ 200/1300 AB 616 DL*
RS 1069 Z	RQ 200/1300 AB 616 DL**

supersedes 10.65
company: Henschel
engine: 6 R1013 FVT(132PS)
* 6 R1013 JVT(120PS)
** 6 R1013 GVT(110PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,5 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

..AB 576 DL

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16	1310	13,9-14,1	420	0	100	6,2-8,1	900	15,8-16,0
				1340	5,0-10,8			200	3,5-6,0	1000	15,4-15,7
				1360	0 - 9,2			300	0 - 1,2		
				1420	0			320	0	1200	14,4-14,8

Torque-control travel
on flyweight assembly dimension a =

1310 mm

Speed regulation: At 0,65mm ± 0,05

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	Control rod travel mm
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	4	5	6	7	8
1300	62,0-65,0	600	900	65,0-68,5		
			700	64,0-67,0		

Checking values in brackets

B3

BOSCH

Geschäftsbericht KH. Kundendienst. Kfz-Ausrüstung
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B. Governor Settings

..AB 616 DL* **

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel rev/min			
1250	14,6-15,2	1250	14,9	1320	14,6-14,9	430	0	100	6,8-8,1	600	15,8-16,0
				1350	5,0-13,0			200	4,4-6,6	800	15,4-15,7
	Breakaway not before 1320			1370	0 - 9,5			300	0 - 2,2		
				1420	0			330	0	1000	14,9-15,1

Torque-control travel on flyweight assembly dimension a

0,35 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	mm
1300	52,5 - 54,5		600	900	50,5 - 53,5	700	51,5 - 54,5	100	mind. 13 mm RW		

Checking values in brackets

Testoil-ISO 4113**B. Governor Settings**

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel rev/min			

Torque-control travel on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	mm
1300	48,0 - 50,0		600	900	46,5 - 49,5	700	47,0 - 50,0	100	mind. 13 mm RW		

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7a(5,7b)

Edition 5.64

En

PES 6 A 80 C 410 RS 2085

RQV 300-1425 AA 517 D*

supersedes

company
engine

Daimler Benz
OM 352

- * When carrying out repairs, convert governor A 517 D to A 538 D and adjust in accordance with test-specification sheet DAI 5.7 d Refer to VDT-BMP 211/155 for automatic control-rod stop

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0				
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	3a	7	8	9	10	
ca.66	1425	15 - 17,8						ca.10	100	6,7-7,8	1425	0
	1450	13,5-16,6							200	6,0-7,4	1200	0,3-0,5
	1500	10,6-14,5							400	3,5-5,2	900	0,6-0,8
	1600	4,0-10,0							600	1,4-2,8	600	0,8-1,0
	1700	0 - 5,0							770	0		
	1780	0										

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
1	2	3	4	5	6	8
1400	57,5-59,5	1425 1450: RW 0,5- 1,0mm less	1000 700 500	55,0-58,0 56,0-59,0 51,0-54,0	100	7,9-9,9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 5,9 f

Edition 2.64

En

PE 6 A 65 C 412 RS 1059 RQV 250-1275 AA 513 D
* RQV 250-1350 AA 513 D

supersedes
company MAN
engine D 0026M1
 M2*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,2				
	6	1,1 - 1,8				
	12	5,8 - 6,5				
200	6	0,5 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 250 - 1275

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel 1	
			1a	2a	4					10	11
ca.66	1275	15 - 18					ca.10	200	6 - 8	1275	0
	1300	12,6-16,2						300	3,6-5,3	1100	0,2-0,4
	1350	7,8-12,8						450	2,9-3,8	900	0,4-0,6
	1400	2,2- 9,2						570	2,1-3,8	500	0,7-0,9
	1450	0 - 5,2						700	0,9-2,2		
	1520	0						850	0		

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a		Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm³/1000 strokes 4 5		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel rev/min mm 8 9	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9	
800	56 - 58	1280 - 1300	1250	51,5-53,5				./.	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausstattung
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B. Governor Settings

RQV 250-1350

MAN 5,9 f

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1	
1	2	3	2a	4	5	6	4	7	8	9	3	10	11
ca .66	1350	15 - 18					ca .10	200	6 - 8	1350	0		
	1400	10,6-14,6						300	3,7-5,2	1100	0,4-0,6		
	1450	6 - 11,4						450	3 - 3,8	800	0,6-0,8		
	1500	1 - 8						600	2 - 3,7	500	0,7-0,9		
	1550	0 - 4,4						750	1,1- 2,6				
	1620	0						900	0				

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel		
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm
900	56,5 - 57,5	1360-1380		1350	52,0-55,0						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			1	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1	
1	2	3	2a	4	5	6	4	7	8	9	3	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel		
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

B7

En

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 KHD 5,1 b

Edition 10.68

En

PE 6 A 70 B 410 RS 1019

EP/RSV 300-1100 A 1 A 386

supersedes 3.64

company

KHD

F 6 L 712

Cyl. 1...3 provided with dummy seal; start-of-delivery mark,
cylinder 4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
ca.60	1100	16	without auxiliary spring	ca.26	300	6	1080	0	450	0	
	1150	11			100	19 - 21					
	1200	4			300	5,7-6,3					
2a	1170	6 - 10	with auxiliary spring		400	0,5- 3	330	1 - 2	500	0 - 1	
	1200	3 - 6			500	0 - 1					
	1250	0 - 2,5									
	1300	0 - 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	4	5	6	7	8	9	
1080	37,5-39,5		1110 - 1130					300	6

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ①A and Governors

40

VDT-WPP 001/4 KHD 3,4 c
Edition 10.68

En

PE .. A 70 B 410 RS 301,321 EP/RSV 300-1400 A 8..320 D
329,424
1043,1117

supersedes
company
engine 3.64
KHD
F..L 712/
812

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Lower rated speed	③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	
1	2	3	4	7	8	9	
ca.65	1400	10	without auxiliary spring	ca.21	300	5,5	
	1440	5			100	19 - 21	
	1465	2			400	3,5-4,5	
2a	1420	6,5 - 8,5	with auxiliary spring		500	0,5-3,4	
	1450	2,5 - 5			650	0 - 1	
	1550	0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to 1 rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1380	40,5 - 42,5	1410-1430	900 500	43,0-46,0 39,5-43,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KRU 10,2a

Edition 2.70

En

PE 8 A 85 C 420 RS 2068 RQ 400/1850 AB 563 DR
2068z ./.supersedes 11.65
company: Krupp
engine: D 710Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC;
mark port opening at cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
	200	9 21	1,1 - 1,9 10,6 - 12,9			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1 mm	Full-load speed regulation				Idle speed regulation				Torque-control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
		1850	12,6-12,8			200	7,6 - 8			800	15,6-16,1
		1860	10 - 12,8			400	4,7 - 7,4			1000	15,1-15,4
1800	12,4-13,2	1800	12,8	1940	0 - 7	600	0 - 2,6			1200	14,5-14,8
				2020	0	700	0			1600	13,1-13,4

Torque-control travel
on flyweight assembly dimension a = 0,95 mm \pm 0,05

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed		
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	7	Control rod travel mm	
1800	97,0 - 100,0	1200	1200	111,5-115,5	100	21 mm RW	./.	

Checking values in brackets

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B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	mm			rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod stop	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7
1850	83,5 - 86,5	1200		1200	88,5 - 92,5		
				1400	87,5 - 91,5		
				1600	85,5 - 88,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	mm			rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod stop	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7

En Checking values in brackets

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 KHD 5,3 z
Edition 2.69

En

PE 4/6A 75B 420 LS 153 Z	EP/RSV 200-..A7 A56D	supersedes	5,3z(3.65)5,3y2
PE 4/6A 75C 420 LS 1036	EP/RSV 300-1000 A7A430D	company	(3.65)
PE 6 A .. S 1035, Z, S1052	EP/RSV 300-1150A4B56D,469D	engine	KHD
PE 8 A 75 B 320 RS 100	EP/RSV 300-1150A..B 374		4

Further closed-loop control values and full-load deliveries, in particular F 6 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers. Reduced engine speeds and deliveries, are listed in KHD 1 a!

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm		
1	2	3	7	8	9	10		
ca .62	900 940 980	16 11,5 5,5	without auxiliary spring	ca.25	200 100 200 300 400 550	6 19 - 21 5,7-6,3 3 - 4 0 - 3,3 0 - 1	880 700 550 300	0 0,3-0,5 1,0-1,2 1,2-1,4
2a	950 1000 1050 1100	9 - 11,5 2,6- 4,8 0 - 2,2 0 - 1	with auxiliary spring					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	rev/min cm³/1000 strokes	6	7	8	9
800	63 - 65		Upper rated speed + 20U/min	500 400 500 400	73 - 76 72 - 75 80 - 83 79 - 82			300	6
1130	72,0-74,0		Upper rated speed + 20 U/min					B430DR, B469DR	
1130	79,0-81,0						300	6	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1000 A 7 A 56 D, --430D

ca.72	1000	16				ca.28	300	6	980	0
	1040	10,6	*				100	19 - 21	700	0,5-0,7
	1070	5,5					300	5,7-6,3	400	1,2-1,4
	1050	6,8-10,2					400	3,0-4,4		
	1080	3,3- 6,0					600	0 - 1		
	1200	0 - 1	**							

300-1150 A4 B56D, 469 D

ca.73	1150	16,0				ca.28	300	6,0	1130	0
	1180	11,8	*				100	19,0-21,0	700	0,5-0,7
	1220	6,0					300	5,7-6,3	400	1,2-1,4
	1200	7,5-10,5					450	1,0-3,5		
	1260	1,5- 3,8					600	0 - 1		
	1350	0 - 1	**							

300-1150 A1 B374 ***

ca.66	1150	16,0				ca.28	300	6,0	1130	0
	1200	11,4	*				100	19 - 21	450	0
	1250	5,8					300	5,7-6,3	330	1,2-1,8
	1230	6,0-9,3					350	3,5-4,7		
	1280	1,8-4,0					400	0,6-3,0		
	1400	0,3-1,0	**				500	0 - 1,0		

300-1150 A4 B374 *** Full-load delivery see page 1!

ca.73	1150	16				ca.28	300	6	1130	0
	1180	12	* without auxiliary spring				100	19 - 21	500	0
	1220	5,8					300	5,7-6,3	350	1,2-1,8
	1200	7 - 10					360	2,8-4,2		
	1250	1,5- 3	**with auxiliary spring				480	0 - 1		
	1350	0 - 1								

Testoil-ISO 4113

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 7,4a(7,4b)

Edition 11.68

En

PE 6 A 75 B 320 RS 154
S 1035
S 1118

RQ 250/1250 A 284
A 312 D

supersedes
company:
engine:

5.64
KHD
F 6 L 613
(120 PS)
(110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16	1250	15,5-16			200	6 - 8,1		
				1260	14 - 16			250	3,5-6		
				1280	7,5-14			300	0 - 2,5		
				1310	0 - 9			340	0		
				1370	0						

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	4	5	6	7		
1230	65,6 - 67,5		1230			100	mind. 9,9
1230	59,0 - 61,0						

Checking values in brackets

B14

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① Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 KHD 5,3 t
(5,3 u)

Edition 3.64

En

PE 4 A 75 B 420 LS 188 RQV 250-825 A 153 D

supersedes 8.59
 company: KHD
 engine: F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)					
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1000	9	3,2 - 3,7	0,3	2	3	6	
	6	0,9 - 1,7					
	15	8,5 - 9,5					
200	9	1,9 - 2,8					

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	① Degree of deflection of control lever	② rev/min	Control rod travel mm	③ Degree of deflection of control lever	④ rev/min	Control rod travel mm	⑤ rev/min	⑥ mm	⑦ rev/min	⑧ mm
1	2	3	⑨ 2a	4	5	⑩ 4a	7	8	9	⑪ 3a	10	11
65±1,5	825	15 - 18					10±1,5	150	7 - 8	825	0	
	840	12 - 15,4						250	4,3-6,6	800	0,1-0,2	
	880	6 - 11						400	1,8-3,3	700	0,4-0,6	
	920	0 - 6,3						530	0	650	0,5-0,7	
	980	0										

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	④ cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
825	76,0-78,0	830-850	600 400	78,5-81,5 76,5-79,5		100	mind. 11,9		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B15

315

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①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 1 1

40

1. Edition

En

PES 6 A 95 C 410 RS 2108	RQV 200-1100 AB752L	(1)
RS 2108Z	RQV 200-1100 AB752L	(2)
RS 2108	RQV 200-1100 AB754L	(3)
RS 2108	RQV 200-1100 AB817DL	(4)

supersedes

company: MAN

engine: D 2156 HM3/HMN1	(1)
D 2146 HM3/HMN1	(2)
D 2356 HM2/HMN2	(3)
D 2156 MY..	(4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	8,4 - 9,4	0,4			
	6	4,0 - 5,0				
	15	16,0 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV..752 L (1,2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	7	8	9	10	11			
ca.68	1145	14,8-18,3		-	-	-	ca.12	150	6,2-8,0	1145	8,2			
	1380	0						250	3,8-5,8					
ca.66	1100	15,0-18,0						350	1,1-3,1					
	1180	8,0-13,0						500	0 - 1,6					
	1260	0 - 7,6						640	0					
	1360	0												

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
1	2	3		4	6	8
1100	115,0-117,0		1120	500	max. 109,0	
1100	109,0-111,0			500	max. 103,0	600
				200	6 mm RW	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV..754L (3)

VDT-WPP 001/4 MAN 9,7 1

1

-2-

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min	1a 2a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min mm	1
1	2	3		4	5	6		7	8	9		10	11
ca.68	145	14,8-18,3		-	-	-		ca.12	150	6,2-8,0		1145	8,2
	1380	0							250	3,8-5,8			
ca.66	1100	15,0-18,0							350	1,1-3,1			
	1180	8,0-13,0							500	0 -1,6			
	1260	0 - 7,6							640	0			
	1360	0											

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel				
rev/min	cm³/1000 strokes	1	2	3	4a	5a	5b	6	7	8	9	Control rod travel mm	5
1100	123,5-125,5					500	max.119,5	200	6 mm RW		600		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV .. 817 L (4)

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min	1a 2a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min mm	1
1	2	3		4	5	6		7	8	9		10	11
ca.68	1145	14,8-18,3		-	-	-		ca.12	150	6,2-8,0		1145	8,2
	1380	0							250	3,8-5,8			
ca.66	1100	15,0-18,0							350	1,1-3,1			
	1180	8,0-13,0							500	0 -1,6			
	1260	0 - 7,6							640	0			
	1360	0											

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel				
rev/min	cm³/1000 strokes	1	2	3	4a	5a	5b	6	7	8	9	Control rod travel mm	5
1100	98,5-100,5					700	99,5-102,5	200	6 mm RW		1100		

Checking values in brackets

* 1 mm less control rod travel than col 2

En

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 MAN 11,6 k

Edition 2.64

En

PE 8 A 85 B 412 LS 272 EP/RSV 250 - 900 A7A 354
C 412 LS 2062 750 A7A 354
MAN-Nr. 282 - 284

supersedes 3.8.61
company MAN
engine D 1548 MT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $5,1 \pm 0,05$ mm mm (from BDC) RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,8	0,4			
	6	1,3 - 2,1				
	12	7,6 - 8,0				
200	9	3,1 - 3,8				
	21	13,1 - 14,9				

Adjust the fuel delivery from each outlet according to the values in 

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	3	4	5	6	Control-lever deflection in degrees	8	Control rod travel mm	9	Control rod travel rev/min	10	Control rod travel mm	11
ca.54	900	16	without auxiliary spring	ca.21	250	6		250	6	880	0	0	1,2-1,8	
	930	10,8			100	19 - 21		100	19 - 21					
	950	6			250	5,7-6,3		250	5,7-6,3					
2a	930	9 - 12	with auxiliary spring		300	3,5-4,8		300	3,5-4,8	300	1,2-1,8	1,2-1,8		
	950	3,6-8			350	0,5 - 3		350	0,5 - 3					
	980	1,2-3			450	0 - 1		450	0 - 1					
	1050	0 - 1												

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop			
	Test oil temp 40°C (104°F)	rev/min	Note changed to 1	rev/min	3	rev/min	cm³/1000 strokes	6	rev/min	7	rev/min	cm³/1000 strokes	8	rev/min	9
NR.282	730	86,5-88,5		760 - 770							n 250	RW 6			
NR.283	880	91,5-93,5		910 - 920											
NR.284	980	94,5-97,5		1010 - 1030											

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 KAE 2,7a

1. Edition

En

PES 2 A 80 B 310/3 RS 367 EP/RSV 250-900 A1A 71 d
 PES 2 A 80 C 310/3 RS 2025 EP/RSV 250-900 A1B 71 d

supersedes
company
engine

Kaelble
M 215 z

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
ca. 49	900	16	without auxiliary spring	ca. 23	250	6	800	0	0	0	
	950	11,2			100	19 - 21					
	990	5,7			250	5,7-6,3					
2a	960	8,4-11	with auxiliary spring		400	1,2-3,6	750	0,3-0,5	0,3-0,5	0,3-0,5	
	980	4,8-9,0			560	0 - 1					
	1140	0 - 1			400	0,7-0,9					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
880	77,5-80,5	910	700 500	4	80,5-83,5 79,5-82,5	5	6	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

8.73

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Testoil-ISO 4113

**② Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 MAN 8,3 f(8,3f1)

Edition 2.64

En

PE 6 A 70 B 412 RS 159

RQ 200/1000 A 128 D

MAN-Nr. 50 / 51

Note: Perform basic adjustment before setting start of delivery.

supersedes 3.58

company:

MAN

engine:

D 1246 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

$2,3 \pm 0,05$

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,6 - 4,8				
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				
Port closing difference between control-rod travel 12 mm and 21 = 2.5-3° camshaft.						

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	4	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	5	Setting point rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16	1000 1020 1060 1100 1140	14,5-14,7 10,4-14,6 3 -10,2 0 - 5,2 0	510	0	50 100 200 350 410	7 - 8 5,5-7,5 4,1-6,1 0 - 2,5 0	400 600 800	16 - 16,3 15,8-16 15,2-15,6

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	6
rev/min	cm³/-1000 strokes	3	4	5	6	Control rod travel mm
Nr.50 950	77,0 - 79,0	700	700 450	80,5 - 83,5 77,5 - 80,5	100	mind.14,9 = 21 mm RW
Mr.51	80,0 - 82,0	700	700 450	84,0 - 86,0 80,5 - 83,5		

Checking values in brackets

Test Specifications

Fuel Injection Pumps ①A and Governors

40

VDT-WPP 001/4 KAE 5,4 a

Edition 12.66

En

PES 4 A 85 B 410 RS 332	EP/RSV 250-1100 A1 A71D	supersedes	1.65
PES 4 A 85 C 410 RS 2002	EP/RSV 250-1100 A1 A71D	company	Kaelble
PES 4 A 85 C 410 RS 2011	EP/RSV 250-1100 A1 B154D,117D	engine	M 215 v -SL
PES 4 A 90 C 410 RS 2011	EP/RSV 250-1100 A1 B458DL ./.		M 215 vT-SL ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8,5 0

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 - 14,8				
	200	6 1,3 - 2,2				
	6	2,9 - 3,7				
	9	7,4 - 7,9			** 9 Ø	
15	16,0 - 17,3					

Adjust the fuel delivery from each outlet according to the values in □

200 6 1,1 - 2,0

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	
ca.64	1100	16,0	without auxiliary spring	ca.27	250	ca.27	6,0	950	0	0,3-0,5	0,7-0,9
	1150	12,0			100		19 - 21	800	0,3-0,5		
	1200	6,5			250		5,7-6,3	600	0,7-0,9		
2a	1190	5,4-9,2	with auxiliary spring		350		3,6-4,7	350	0,7-0,9		
	1250	1,5-4,2			450		0 - 3,0	350	0,7-0,9		
	1350	0,3-1,0			550		0 - 1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40 °C (104 °F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	2	3	4	5	6	7	8	9
1080	81,5-84,5	1120	700	83,5-86,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C3

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C3

The numbers denote the sequence of the tests

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	Control rod travel mm	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.64	1100 1150 1200	16,0 12,0 6,5	without auxiliary spring			ca.27	250	6,0	1080	0	
2a	1170 1200 1250 1350	8,0-11,2 4,6- 8,2 1,5- 4,2 0 - 1					100 250 400 600	19 - 21 5,7-6,3 2,0-4,0 0 - 1	800 650 350	0,3-0,5 0,6-0,8 0,7-0,9	

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat.		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm	Control rod travel mm	
1080	81 - 84			1120	700	84 - 87							
1080	101 -104				700	104 -107							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed rev/min		3 Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	Control rod travel mm	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
2a											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat.		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm	Control rod travel mm	

Checking values in brackets

* 1 mm less control rod travel than col. 2

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 KRU 5,8 f

Edition 2.64

En

PE 4 A 85 B 320 LS 548 RQ 400/1950 A 393 D
LS 2015

supersedes 20.4.61
company: Krupp
engine: D 459

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,8 - 0,1

mm (from BDC)

RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	12	8,9 - 9,5	0,4			
1000	9	4,4 - 5,2				
	6	2,2 - 3,1				
	9	2,6 - 3,4				
200	21	11,9 - 16,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	①	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	④	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	⑤	③	
1	2	3	4	5	6	7	8	9	10	11	12
		1950	14,6-14,9			300	6,4-8,1	1100	15,7-16		
		2000	5 - 12,5			400	4,6-6,8	1300	15,3-15,6		
		2050	0 - 7			500	2 - 4,6	1500	14,9-15,2		
1900	14,6-15,2	1900	14,9	2120	0	550	0 - 3				
						640	0				

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		②	Control rod stop		③a	Fuel delivery characteristics		③b	Starting fuel delivery Idle speed		⑥
rev/min	cm ³ /1000 strokes	②	rev/min	③a	rev/min	cm ³ /1000 strokes	③b	rev/min	cm ³ /1000 strokes/mm	⑥	
1	2	3	4	5	6	7	8	9	10	11	
1900	97,0 - 99,0		1200		1200	99,0 - 102,0		100	21 mm RW		
					1600	99,5 - 102,5					

Checking values in brackets

C5

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C5

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 10,9 g

Edition 3.69

En

PE 6 A 90 B 312 LS 314	RQ 200/1000 A 363 D (1)
PE 6 A 90 C 312 LS 2044,Z	RQ 200/1000 AA 363 D (1,2,)
PE 6 A 90 C 312 LS 2044,Z	RQ 250/1000 AA 363 D (1,2,)
PE 6 A 90 C 312 LS 2044	RQ 200/1050 AA 363 D (3)

supersedes 12.66
 company: Büssing
 engine: U 11/200 (1)
 170 (2)
 210 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	10,3 - 10,7	0,4			
	9	6,0 - 6,5				
	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings 200/1000

Checking of slider PRG check	Full-load speed regulation						Idle speed regulation				Torque control	
	Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	3
980	14,6-15,4	980	15,0	1020	14,8-15,0	420	0	100	6,2-8,1	400	15,8-16,2	
Breakaway not before n = 1020				1040	8,8-14,2			150	5,2-7,4	600	15,5-15,8	
				1060	1,2-10,6			200	3,8-6,0	800	15,1-15,4	
				1080	0 - 7			300	0 - 1,6			
				1120	0			320	0			

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics rev/min		Starting fuel delivery Idle speed Control rod travel rev/min	
rev/min	cm³/-1000 strokes	3	4	5	6	7
1000	118,5-120,5	500	500 700 900	116,5-120,5 115,5-119,5 119,0-123,0	100	mind.18,5mmRW Adjustment (1) . /.

Checking values in brackets

C6

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C6

B. Governor Settings

250/1000

BOS 10,9 g

-2-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel	Control rod travel
Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
950	14,6-15,4	950	15,0	1020	14,8-15,0	490	0	100	5,8-7,6	500	15,7-16,0
	Breakaway not before 1020			1060	6,0-12,5			250	3,0-5,2	700	15,3-15,6
				1080	0,5- 9,5			350	0 - 2		
				1150	0			390	0	900	15,0-15,2

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery		Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	rev/min	1	2
1	2	3	4	5	6	6	7	6	7	1	2
1000	105,5 - 108,5			900	105,5 - 109,5			100	105,5 - 109,5		Adjustment (2)
				700	103,5 - 107,5			250	103,5 - 107,5		
				500	105,5 - 109,5			350	105,5 - 109,5		

Checking values in brackets

B. Governor Settings

250/1050

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel	Control rod travel
Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1000	14,6-15,4	1000	15,0	1070	14,8-15,0	500	0	100	6,2-8,1	500	15,7-16,0
	Breakaway not before 1070			1100	9,2-13,5			150	5,6-7,6	700	15,4-15,7
				1140	0 - 8,5			250	3,7-5,7		
				1200	0			350	0 - 2,6	900	15,0-15,2
								400	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery		Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	rev/min	1	2
1	2	3	4	5	6	6	7	6	7	1	2
1050	120,0-123,0		500					100	mind. 18,5 mmRW		Adjustment (3)

En Checking values in brackets

C7

C7

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 SCL 3,3 a
Edition 12.70

En

PES 3 A 85C 410 RS 2280 (1)
RS 2280Z (2)

EP/RSV 250-1000A1B 563DL

supersedes
company
engine

Schlüter
SDM 106 W3(1-45PS)
SDM 110 W3(2-55PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	②	3	4	3	6
		9	4,9 - 5,5	0,4		
1000	6	1,3 - 2,1				
	15	12,1 - 13,2				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Lower rated speed	③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm
ca.50	1000	12,0		ca.20	250	5,5
	1020	9,4			150	19 - 21
	1050	5,0	without auxiliary spring		250	5,2-5,8
②a	1020	8,5-10,2	with auxiliary spring		350	2,9-4,2
	1050	4,3- 6,4			540	0 - 1
	1150	0 - 1			980	0
					800	0,5-0,7
					400	0,5-0,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1000	61,0-63,0	1020	700 500	ca.20 5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

C8

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B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed		3 Torque control	
Control rod travel mm	Control rod travel mm rev/min	1	4	5	6	7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
2	3		4	5	6	7	8	9	10	11	

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	10	11	Control rod travel mm
1000	73,0 - 75,0			1020	700 500	71,0 - 74,0 64,0 - 67,0		100	ca. 20	250	5,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Control-lever deflection in degrees		Lower rated speed		3 Torque control	
Control rod travel mm	Control rod travel mm rev/min	1	4	5	6	7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
2	3		4	5	6	7	8	9	10	11	

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	10	11	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 b

Edition 5.64

En

PE 6 A 80 B 410 RS 2085 RQV 300-1425 AA 536 DL
2194 AA 551 DL

supersedes

company:

engine

Daimler-Benz
OM 352 A
(150 PS)

Refer to VDT-BMP 211/15 for testing of
automatic control-rod stop.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		③a	
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	①
1	2	3	②a	4	5	6	⑤	7	8	9	⑩	11
66±1,5	1425	16 - 19,4						10±1,5	100	6,7-7,8	1400	0
	1450	14,5- 18,2							300	5,0-6,8	1000	0,1-0,3
	1550	8,2- 13,4							400	3,4-5,2	800	0,4-0,6
	1650	1,4- 8,0							450	3,0-4,2	500	0,4-0,6
	1800	0							500	2,5-3,7		
									780	0		

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	9
1400	66,0-68,0			1425	1000	60,5-63,5	100	13,2-13,8	
				1450:0,1-1,0	800	61,5-65,5			1300
				mmRW less	500	56,5-60,0			(A \$36DL)

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 KAR 5,4 b

Edition 1.65

En

PES 4 A 85 C 410 RS 2011 EP/RSV 250-1100 A 1 B 168

supersedes
company
engine

5.63
Kaelble
M 215 V

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	Control rod travel mm	
ca.64	1100	16	without auxiliary spring	ca.27	250	6	1080	0
	1150	12 - 12,2			100	19 - 21	400	0
②a	1200	6,7- 6,8	with auxiliary spring		150	9,4- 21	300	1,2-1,8
	1160	9,7-11,7			250	5,9-6,1		
②a	1200	4 - 8,2			350	1,1-3,5		
	1300	0,3- 1			450	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to 1 rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop Control rod travel mm		
rev/min	cm³/1000 strokes	4 rev/min	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
1080	87,5-89,5	1110-1120				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

C11

C11

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 HEN 6,1 m

Edition 6.69

En

PE 6 A 80 C 412 RS 2005 RQ 200/1300 AA 521 D (V7121 D)
AA 522 D

supersedes
company:
engine:
2.64
Henschel
522 TA
522 TAF

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

AA 521 D (V7121D)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,6-16,4	450	16	1320	13,7-13,9	440	0	100	6,8-8,1	600	16
				1340	7 - 13,2			200	4,3-6,5	800	15,4-15,8
				1380	0 - 6,2			300	0 - 2,2	1000	14,7-15,1
				1420	0			340	0	1250	14,9

Torque-control travel
on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm
rev/min	cm³/-1000 strokes	Control rod stop		rev/min	cm³/-1000 strokes	6	cm³/1000 strokes/mm	7	Control rod travel mm
1	2	3	4	5	6	8	9	10	11
1280	65,2 - 67,2		700	700	70,0-73,0				./.
				1000	67,5-70,5				
				1300	mind.65,2				

Checking values in brackets

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C12

C12

B. Governor Settings

AA 522 D

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel rev/min	Control rod travel mm
		rev/min	Control rod travel mm	Control rod travel mm	rev/min			rev/min	Control rod travel mm		
1250	14 - 14,8	1250	14,4	1320	14 - 14,4	440	0	100	6,6-8,1	700	15,7-16
				1350	6 - 12,6			200	4,2-6,6	900	15,1-15,4
				1370	0 - 9,4			300	0 - 2	1100	14,4-14,6
				1430	0			340	0		

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	Control rod travel mm	
1280	65,7 - 67,7		700	700	68,0 - 71,0				
				1000	65,0 - 68,0				
				1300	mind. 65,7				

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel rev/min	Control rod travel mm
		rev/min	Control rod travel mm	Control rod travel mm	rev/min			rev/min	Control rod travel mm		

Torque-control travel

on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	Control rod travel mm	

En

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 8,7 h

Edition 2.64

En

PE 6 A 80 C 421 LS 2058

RQ 150/1100 AA 455 D

supersedes 1.63

company: MAN

engine: D 1546 M 1 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,5 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation						Idle speed regulation						Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	7	Control rod travel mm	rev/min	Control rod travel mm	11	Control rod travel mm	12	13	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1050	14,1-14,7	1050	14,4	1100 1130 1160 1220	13,8-14,4 7,4-12,6 0 - 8,2 0	560		50 100 200 300 460	6 - 7,9 5,5 - 7,6 3,6 - 5,7 0 - 2,5 0	600 800 975	15,8-16 15,1-15,5 14,4-14,8	15,8-16 15,1-15,5 14,4-14,8	16	17	

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	③a	Fuel delivery characteristics		③b	Starting fuel delivery Idle speed		⑥
		3	③a			③b			Control rod travel mm
rev/min	cm³/-1000 strokes	3	4	5	cm³/1000 strokes	6	rev/min	cm³/1000 strokes/mm	8
1080	83,5 - 85,5	500	700 500	86,0 - 89,0 86,0 - 89,0		100	RW 21	mm	19

Checking values in brackets

C14

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C14

③

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 DAI 1,8 1

Edition 2.64

En

PES 4 A 50 B 410 RS 144

EP/MZ 60 A 93 D

supersedes
company
engine

1.8.59
Daimler-Benz
OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
1	Vacuum pressure drop mm water col	Time at least s	Vacuum	Control rod travel mm	Vacuum	Control rod travel mm	Vacuum	Control rod travel mm	Vacuum	Control rod travel mm	
0,6+0,1	500-480	10	430	13,0			470	13,0	200	13,5-13,7	
							500	11-12,6	250	13,4-13,7	
							600	7,5-9,4	320	13,1-13,4	
							2000	4,9-5,5			

control rod travel test (cols 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics						idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes
rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat col	8
1600	430	28,2-29,2	1200	270	28,2-30,2	0	0	6,0-6,3	900	175	28,2-30,2
			250	ca. 580	6,2-8,2						dispersion max. 1,5

Checking values in brackets

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C15

C15

Test Specifications

Fuel Injection Pumps ①A

and Governors

40

VDT-WPP 001/4 HAN 6,8 a

Edition 3.67

En

PE 4 A 90 C 420 RS 2122, Z	EP/RSV 250-750 A4 B198DR
RS 2122	+ 250-850 A4 B199DR
RS 2122	++ 250-900 A4 B192DR

supersedes	7,64
company	Hanomag
engine	D 941R
	+D 941K7 (70PS)
	++D 941B8 (75PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 B 198 DR

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.48	750	16,0	without auxiliary spring	ca.25	250	6,0	730	0	600	0,5-0,7
	790	12,0			100	19 - 21	500	0,6-0,8		
②a	830	6,8	with auxiliary spring		250	5,7-6,3	450	0 - 2,7	350	0,6-0,8
	800	9,6-11,8			350	3,4-4,6	550	0 - 1		
②a	830	5,1- 8,4			450	0 - 2,7	550	0 - 1		
	900	1,1- 3,5			550	0 - 1				
	1000	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	⑥ Rotational speed limitat Note changed to) rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ rev/min	cm³/1000 strokes	④a Idle stop	Control rod travel mm
730	88,5-90,5		760	600 91,5 - 94,5 500 92,5 - 95,5					
730	102,0-105,0		760	600 102,5 - 106,5 500 105,5- 109,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

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B. Governor Settings

+ EP/RSV 250-850 A 4 B 199 DR

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees		3 Torque control Control rod travel rev/min		Control rod travel mm	
1	2 Control rod travel mm	3 Control rod travel mm rev/min	4	5	6	7	8 rev/min	9 Control rod travel mm	10 rev/min	11 Control rod travel mm	
ca.53	850	16,0	without auxiliary spring	ca.26	250	7	830	0	0	0,4-0,6	
	890	12,0			100	19 - 21	700,	0,4-0,6	0,4-0,6	1,1-1,3	
	940	6,0			250	6,7-7,3	500				
	900	9,6-11,9			350	4,5-5,7	350				
	930	5,4- 8,6			450	0,4-3,9	350				
	1000	1,0- 3,8	with auxiliary spring		600	0 - 1	350	1,3-1,5	1,3-1,5	1,3-1,5	
	1100	0,3- 1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop Control rod travel mm	
1 rev/min	2 cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9	10	11			
830	79,5 - 81,5		860 - 870	700 500	84,5 - 87,5 88,5 - 91,5								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

**EP/RSV 250-900 A 4 B 192 DR

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees		3 Torque control Control rod travel rev/min		Control rod travel mm	
1	2 Control rod travel mm	3 Control rod travel mm rev/min	4	5	6	7	8 rev/min	9 Control rod travel mm	10 rev/min	11 Control rod travel mm	
ca.56	900	16,0	without auxiliary spring	ca.25	250	6	880	0	0	0,2-0,4	
	940	12,0			100	19 - 21	800	0,2-0,4	0,2-0,4	0,4-0,6	
	980	7,0			250	5,7-6,3	700				
	950	9,6-12,0			350	3,5-4,7	600				
	980	5,0- 8,7			450	0 - 2,8	350				
	1040	1,3- 3,7	with auxiliary spring		550	0 - 1	350	0,6-0,8	0,6-0,8	0,6-0,8	
	1140	0,3 1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics			Starting fuel delivery Idle		5		4a Idle stop Control rod travel mm	
1 rev/min	2 cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9	10	11			
880	86,0-88,0		910-920	750 600	85,5-88,5 86,0-89,0								

The value measured at n 600 must be - 2 cm³/1000 strokes higher

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 HAN 10,2 a
Edition 7.64

En

PE 6 A 90 C 320 RS 2123

EP/RSV 250-750 A 4 B 195 DR
+ (250-900 A 4 B 193 DR
+ (250-900 A 4 B 194 DR

supersedes
company Hanomag
engine D 691 K 10 E (100 PS)
(D 691 K 11 (105 PS)
+ (D 691 B 11 (105 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,4	0,4			
	6 15	2,3 - 3,1 14,3 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

EP/RSV 250 - 750 A 4 B 195 DR

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca. 48	750	16,0	without auxiliary spring	ca. 25	250	5,5
	790	12,0			100	19,0-21,0
	830	6,6			250	5,2- 5,8
2a	800	9,4-11,8	with auxiliary spring		350	2,8- 4,1
	850	3,4- 6,0			450	0 - 2,2
	900	0,6- 3,0			550	0 - 1,0
	1000	0,3- 1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
730	77,75- 79,75		760-770	600 400	80,0-83,0 84,0-87,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings(EP/RSV 250-900 A 4 B 193DR
+ (EP/RSV 250-900 A 4 B 194DR)

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
ca. 54	1	900	16,0			without auxiliary spring	ca. 23	250	5,5	810
	2	940	11,2					100	19 - 21	700
	3	980	5,2					250	5,2-5,8	600
	4	950	8,3-11,5					350	2,8-4,1	500
	5	1000	2,6- 4,6					450	0 - 2,1	350
	6	1050	0,3- 2,3					550	0 - 1,0	
	7	1100	0,3- 1,0							
	8					with auxiliary spring				
	9									
	10									
	11									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	rev/min	4	5	6	rev/min	7	8	9	
880	79,0-81,0		910 - 920	700 500	78,0-81,0 76,5-79,5						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
2a	1	2	3	4	5	6	7	8	9	10

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	rev/min	4	5	6	rev/min	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

**② Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 MAN 11,1 a

2.Edition

En

PES 6 A 95 D 410 LS 2382(1) RQ 250/1150 AB 839 DL
LS 2397 RQV 250-1150 AB 847 DL
PES 6 A 95 D 410 LS 2382Z(2) AB 850 DL
LS 2397Z

supersedes 7.73
company: MAN
engine: D 2556M/MH
(1-192PS)
.MU/H
D 2556M/MF
(2-200PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,6 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	7,4 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ..839 DL

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1170 1200 1250 1320	15,0-15,4 10,0-14,4 0 - 9 0	540	0	150 250 350 440	6,6-8,1 4,5-6,7 1,5-4,0 0	880 1020 1100	15,8-16,0 15,4-15,6 15,3-15,4

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation: At 1190-1205

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel	
1	2	3	4	5	6	7		

Checking values in brackets

The numbers denote the sequence of the tests

B. Governor Settings

RQV ..847 DL, 850 DL

1 Upper rated speed rev/min			Intermediate rated speed			4		Lower rated speed		3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 50	1170	14,4-17,4	-	-	-	ca. 13	50	7,7-11,0	200	0,5-1,2	
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0	
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4	
	1350	0					350	0 - 3,4	1180	8,4	
2a							410	0	1280-		
									1350	end (11)	

Torque-control travel dimension a = 0,4 mm/500-700 U/min.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop	
rev/min	cm³/1000 strokes	Note: changed to ...)	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	97,5-99,5	1190-1205*	800 500	100,5-103,5 max. 98,5	100	11,9-12,9 (14+0,3mmRW)			
PES 6	A..S2382 / RQ..839DL, RQV..847DL, 850DL S2397 / RQ..839DL				250RW	7,0mm			
					RQV:	Change-over point			
						180-100 U/min			

Checking values in brackets

* 1 mm less control rod travel than col. 2

(increase by $\pm 1,0 \text{ cm}^3$!)

B. Governor Settings

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop	
rev/min	cm³/1000 strokes	Note: changed to ...)	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1150	103,0-105,0	1190-1205*	800 500	105,5-108,5 max. 102,5	100 250RW	11,9-12,9 7,0mm RQV: Change-over point 180-100 U/min			
PES 6	A.. S2382Z / RQ..839DL, RQV..850DL S2397Z								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 HAN 6,8b
Edition 5.72

En

PE 4 A 90 C 420 RS 2122 EP/RSV 250-900 A4B223D,226D (1)
(D) RS 2122 350-900 A4B223D,226D (2)
RS 2122Z 350-900 A4B226D (3)

supersedes 12.65
company Hanomag
engine D 941

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery "D" cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,4	0,4	9	5,1 - 5,5	
	6	2,3 - 3,1		6	1,6 - 2,6	
	15	14,2 - 15,5			---	
200	9	3,8 - 4,6		9	1,9 - 3,8	

Adjust the fuel delivery from each outlet according to the values in 

B. Governor Settings

250-900 (1)

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	
ca.56	900	16,0	without auxiliary spring	ca.25	250	7,0	800	0	0,8-1,0
	940	12,2			100	19 - 21		750	
	990	5,6			250	6,7-7,3		400	
	970	6,2-10,0			400	2,5-4,7			
2a	1040	1,5- 3,9			600	0 - 1			
	1150	0 - 1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop
Test oil temp 40°C (104°F)	Note changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
900	82,0-84,0	920	700 500	96,5-99,5 92,5-95,5			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C23

C23

The numbers denote the sequence of the tests

B. Governor Settings

350-900 (2,3)

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed rev/min		3 Torque control rev/min	Control rod travel mm	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9		10	11
ca .56 2a	900	16,0	without auxiliary spring	ca .29	350	7,9	900	0			
	950	11,0			100	19 - 21	700	0,8-1,0			
	980	6,8			350	7,6-8,2	400	1,3-1,5	"Z"=0,7!		
	950	9,7-11,8	with auxiliary spring	500	500	2,4-5,1	660	6 - 1,5			
	1000	4,2- 6,4			660	6 - 1,5					
	1120	0 - 1,5									

C. Settings for Fuel Injection Pump with Fitted Governor**Testoil-ISO 4113**

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle		5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9 cm³ / 1000
900	96,0-98,0	920	700	108,5-112,5	100	ca .21mmRW	350	16,25-20,25
900	94,0-96,0		500	107,5-111,0				
(2)			700	105,5-109,5				
			500	104,0-108,0				
900	103,0-105,0	920	700	107,0-110,0	100	ca .21mmRW	350	16,25-20,25
(3)			500	105,0-108,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed rev/min		3 Torque control rev/min	Control rod travel mm	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9		10	11
2a											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle		5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9 cm³ / 1000

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,7 h

Edition 6.68

PES 4 A 50 B 410 RS 17, 50

EP/M60A 55D, 71D

A 125D

A 156DL ./.

Frsupersedes
Company
engine2.64
Daimler-Benz
635 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage Vacuum pressure drop mm water col	Time at least s	Control-rod travel limitation breakaway* Vacuum mm w.c.	Control rod travel mm	Control rod travel test Vacuum mm w.c.	Control rod travel mm	Auxiliary spring auxiliary cam** Vacuum mm w.c.	Control rod travel mm	Torque control Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1,0+0,1	500-480	10	300	12,3			410	12,3	50	13,3-13,4
							470	8,6-12,3	100	12,6-13,0
							700	0,7- 3,2	150	12,3-12,4
							A55D			
							410	12,3	50	13,3-13,4
							450	7,8-12,3	100	12,6-13,0
							A71D			
							600	0 - 2,7	150	12,3-12,4
							A125D			

* = rotational speed 500 rev/min
** adjust breakaway (cols 4-5) by means of shims.
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics			Idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes	
rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat col	cm³/1000 strokes	Idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes	
1	2	3	4	5	6	7			
1000	300	28,2 - 29,2	500	50	30,2-33,2				
			750	125	28,2-31,2				

Checking values in brackets

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Testoil-ISO 4113

B. Governor Settings

EP/M 60 A 156 DL

DAI 1,7h

-2-

Torque control travel mm	Leakage			Control rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	
1 0,95 +0,05	2 500-480	3 10	4	5	6	7	8 330 375 450 500	12,3 7,6-11,8 0 - 6,8 0 - 3,5	150 200 240 290	13,2-13,3 13,0-13,3 12,4-12,7 12,3	
*											
control rod travel test (cols 4-11) rotational speed 500 rev/min adjust breakaway (cols 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**											

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics						Idle (stop)** Idle (imbalance)	
rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat col	rev/min	Vacuum mm wat col	8
1100	290	28,4 - 29,4	850 500	200 70	30,7-31,7 29,9-32,9					

Checking values in brackets

- * Set breakaway at n 1100 and WG 330 by means of shims: at WG 360 governor must have regulated 0.2-0.6 mm control-rod travel.

(3)

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 DAI 1,7i2(1,7i3)

Edition 2.64

En

PES 4 A 50 B 410 RS 50 EP/M 60 A 121 D
 RS 68
 RS 68 z

supersedes 2.61
 company Daimler-Benz
 engine OM 636 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1,				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage			Control-rod travel limitation breakaway*	Control rod travel test	Auxiliary spring auxiliary cam**		Torque control	
1	Vacuum pressure drop mm water col	Time at least s	Vacuum	Vacuum Control rod travel mm w.c. mm	Vacuum Control rod travel mm w.c. mm	Vacuum Control rod travel mm w.c. mm	Vacuum Control rod travel mm w.c. mm	Vacuum Control rod travel mm w.c. mm	Vacuum Control rod travel mm w.c. mm
1,0+0,1	500-480	10	300	12,4		430 12,4	500 5 -11,5	40 13,3-13,4	75 12,9-13,3
						550 1,5-7,9	600 0 -4,5	125 12,4-12,7	

control rod travel test (cols 4-11)
*= rotational speed 500 rev/min
adjust breakaway (cols 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics						Idle (stop)** Idle (imbalance)		Control road travel from full-load to idle mm cm ³ /1000 strokes
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	7	8	
RS 50	1000	300	28,2-29,2	500	50	31,2-33,2					
RS 68	1000	300	22,7-23,7	500	50	24,7-27,7					
RS 68z	1000	300	27,2-28,2	500	50	28,7-31,7					

Checking values in brackets

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D3

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,8 o

Edition 2.64

En

PES 4 A 50 B 410 RS 144 z EP/MZ 60 A 93 D

supersedes 1.8.59
company Daimler-Benz
engine OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,- 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
1	Vacuum pressure drop mm water col	Time at least s	2	Vacuum	Control rod travel mm	6	Vacuum	Control rod travel mm	8	Vacuum	Control rod travel mm
0,6±0,1	500-480	10	430	11,9				470 11,9	200 12,4-12,6		
								500 9,9-11,6	250 12,3-12,6		
								560 7,5- 9,4	320 12 -12,3		
								2000 4,6- 5,2			

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics						idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm ³ /1000 strokes	
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	7	Vacuum mm wat col	8	rev/min	Vacuum mm wat col	8	
1600	430	23,7-24,7	1200	270	23,7-25,7		0	0			4,9 - 5,2	
			900	175	23,7-25,7							
			250	ca. 580	6,2- 8,2							
				dispersion	max. 1,5							

Checking values in brackets

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① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,6b

Edition 3.64

En

PES 6 A 80 B 410 RS 174 RQV 300-1425 A 427 D

supersedes 19.1.62
company Daimler-Benz
engine OM 322

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	① 1a	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	① rev/min	mm 11
66 \pm 1,5	1425	15 - 18						10 \pm 1,5	200	7 - 8	1400	0	
	1450	13 - 16,5							300	4,5-6,7	1200	0,4-0,6	
	1500	8,5-13,5							400	3,2-3,8	1000	0,8-1,0	
	1550	4 - 10							600	2 - 3,6	800	1,2-1,4	
	1600	0 - 6,8							800	0,3-1,5	600	1,4-1,6	
	1700	0							930	0			

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	② 2b	④ 4b	⑤a	⑥	⑤
1	2	3	4	5	6	8
1000	54,0-56,0	1425	1400 700 500	55,5-58,5 56,0-59,0 55,5-59,5	100 mind. 7,9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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DS

D5

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 DAI 1,8 q
Edition 10.69

En

PES 4 A 50 B 410 RS 68	EP/RSV 250-1150 A4/307	supersedes	2.64
RS 1010	A4 B333	company	Daimler-Benz
RS 1010X	A4 B333	engine	OM 636
RS 68, 1010	250- 900 A4 B333 ./.		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	2,2 - 2,7	0,3			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250 - 1150

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control			
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
2a	ca.71	1150 1190 1210	16 10 6,2	without auxiliary spring			ca.24	250 100 250 300 420	6 19 - 21 5,7-6,3 3,8-5,9 0 - 1	1130 450 300	0 0 1,2-1,8	
		1180 1220 1300	10,3-12,6 3,6- 6,6 0 - 1	with auxiliary spring								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40 °C (104°F)	⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle		⑤ Idle stop Control rod travel rev/min	④a Control rod travel mm
			6	7		
"V"	1130	23,7 - 24,7	1160			
"Y"	1130	22,7 - 23,7	1160		250 RW 6	

Checking values in brackets

* 1 mm less control rod travel than col 2

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D6

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B. Governor Settings

250-900

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11
ca .57	900 940 980	16,0 12,2 7,1	without auxiliary spring	ca.24	250	6,0	880	0	290	1,2-1,8
	980 1040 1150	4,0-9,2 0,5-3,0 0 - 1			100 250 350 450	19 - 21 5,7-6,3 0,8-3,2 0 - 1				
2a			with auxiliary spring							

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	Control rod travel mm
	1	2	3	4	5	6	7	8
	880	23,7-24,7	910					250
								6,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	Control rod travel mm
	1	2	3	4	5	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 STE 2,3a (2,3b)
Edition 9.64

En

PES 3 A 65 C 310 RS1140 EP/RSV 250-1200 A1B 432 DL

supersedes
company
engine

Steyr-Daimler-Puch
WD 306a
(36 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7-6,2				
	6	1,4-2,1				
	18	9,7-10,6				
200	6	0,8-1,6				

Adjust the fuel delivery from each outlet according to the values in ■■■■■

Testoil-ISO 4113

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.66	1200	12	without auxiliary spring	ca.27	250	6
	1230	8,4			100	19 - 21
	1260	5			250	5,7-6,3
2a	1230	7,8-9,2	with auxiliary spring		350	3,6-4,8
	1260	4-6,2			450	0 - 3
	1300	1,4-3,4			600	0 - 1
	1400	0,3-1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	5	4a	Idle stop Control rod travel mm
1	2	3	4	5	6	7	8	9	
1180	40,0-42,0	1200-1220	1100 700 500	39,2-42,2 45,7-48,7 46,5-49,5	100	6,4-6,9	250	6	

Checking values in brackets

* 1 mm less control rod travel than col 2

D8

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② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 15,8 a

Edition 7.71

En

PE 10 A 75 C 520/4 RS 1137	RQ 200/1150 AA 477 DR	(1)	supersedes 11.66
RS 1137,Z	RQ 200/1150 AB 583 DR	(2)	company: KHD
(V 7200)	RS 1137 RQV200/1150 AB 461 DR	(3)	engine: F 10 L 714
(V7765D)	RS 1137 RQV300-1150 AB 586 DR	(4)	

1 - 10 - 5 - 7 - 2 - 8 - 3 - 9 - 4 - 6 - 1
 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 AA 477 DR (1)

PRG check	Full-load speed regulation						Idle speed regulation						Torque control	
	Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel rev/min	Control rod travel mm
Control rod travel rev/min	1	2	3	4	5	6	7	8	9	10	11	12	11	12
**	1130	13,0-13,8	1130	13,4	1150 1180 1200 1250	13,2-13,4 3,0-12,0 0 - 9 0	440	0	100 200 300 340	6,0-8,0 3,2-5,8 0 - 2 0	400 600 800 800	15,8-16,2 15,3-15,6 14,7-15,0 13,9-14,2	15,8-16,2 15,3-15,6 14,7-15,0 13,9-14,2	
***	450	15,6-16,4	450	16,0	1170 1200 1220 1270	13,9-14,1 4,0-12,0 0 - 8,5 0	430	0	100 200 300 330	6,6-8,1 4,2-6,5 0 - 2 0	800 900 1000	15,5-15,9 15,0-15,4 14,4-14,8	15,5-15,9 15,0-15,4 14,4-14,8	

Torque-control travel ** 0,8
on flyweight assembly dimension a =*** 0,6 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

(2)	Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop (3a)		Fuel delivery characteristics (3b)		Starting fuel delivery idle speed (6)	
	rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel
1	2	3	4	5	6	7	6	7
(1)	1130	79,0 - 81,0	600	1000 600	82,0 - 85,0 86,0 - 88,0			
(2)	1130	83,5 - 85,5	600	1000 600	86,0 - 89,0 89,5 - 92,5	100	ca. 18 mm RW	
(2-Z)	1130	88,0 - 90,0	600	1000 600	89,5 - 92,5 93,0 - 96,0	100	ca. 18 mm RW	
(3,4)	1130	84,5 - 86,5	1170	1000 600	84,0 - 87,0 87,5 - 90,5	100	ca. 17 mm RW	

Checking values in brackets

**** Breakaway not before n = 1170

②

Testoil-ISO 4113

RQV 200-1150 AB 461 DR (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque-control travel dimension a = 1,2 mm

ca.68	1150	15,0-18,0	-	-	-	ca.10	100	7,0-7,6	1130	0
	1200	9,6-14,0					200	4,3-6,6	900	0,4-0,6
	1240	5,5-10,6					300	2,6-3,4	700	0,9-1,1
	1320	0 - 4,4					500	1,2-2,6	400	1,1-1,3
	1370	0					730	0		

RQV 300-1150 AB 586 DR (4)

Torque-control travel dimension a = 0,9 mm

ca.68	1150	13,0-16,5	-	-	-	ca.10	100	6,8-8,0	1130	0
	1180	9,0-14,0					300	4,8-7,0	1000	0,3-0,5
	1220	3,4-10,0					400	3,0-5,2	800	0,5-0,7
	1260	0 - 6					500	2,2-3,8	500	0,8-1,0
	1320	0					600	1,0-2,5		
							750	0		

Testoil-ISO 4113

D10

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 STE 2,3 b

Edition 1.68

En

PES 3 A 75 C 310 RS 1215 EP/RSV 250-1200 A1 B271DL
 PES 4 A 75 C 410 RS 1215 EP/RSV 250-1200 A1 B266DL*

supersedes
company
engine

-
Steyr
WD 307(38PS)
WD 407(50PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
1000	6	1,9 - 2,6				
1000	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.66	1220 1250 1280	12,0 8,8 4,8	without auxiliary spring	ca.26	250 100 250 400 560	6,0 19,0-21,0 5,7-6,3 1,8-3,8 0 - 1
2a	1250 1300 1380	8,0-9,7 2,5-4,2 0 - 1	with auxiliary spring		1200 1000 700 400	0 0,8-1,0 1,6-1,8 1,6-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	5	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel
rev/min	cm³/1000 strokes	3	4	5	rev/min cm³/1000 strokes	6	7	8	9
1200	47,0-49,0	1200	1000 700	49,5 - 52,5 51,5 - 54,5	1000 700	14,0-14,6	(3 Cy1.)		
1200	45,5-47,5	1200	1000 700	48,5 - 51,5 50,5 - 53,5	1000 700	14,0-14,6	(4 Cy1.)*		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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D11

D11

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 MAN 7,2 e
Edition 7.64

En

PES 6 A 80 C 412 RS 2051

supersedes
company:
engine:
MAN
D 08 36 M 3 H
(135 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min 1	Control rod travel mm 2	Control rod travel mm 3	Control rod travel mm 4	Test specifications rev/min 5	Setting point rev/min 6	Control rod travel mm 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel mm 11	Control rod travel mm 12
1200	14,3-15,1	1200	14,7	1250	14,4-14,7	550	0	450	0	500	15,8-16,4
				1260	12,8-14,7			350	1,6-4,0	700	15,4-15,8
				1290	6,2-12,2			250	4,5-6,5	900	14,9-15,3
				1330	0 - 7,0			150	6,2-8,1	1100	14,7
				1380	0			100	6,7-8,1		

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7	
1250	65,0 - 67,0	700	700	63,0 - 66,0	Idle 250	stop 6 mm RW	

Checking values in brackets

D12

012

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 KHD 12,6 f
Edition 3.70

En

PE 8 A 75 B 320 RS 1170 RQ 200/1150 A 468 D
 1022 A 475 D
 1022 y*
 1022 z**

supersedes 5.64
 company: K H D
 engine: F 8 L 714 = 200PS
 * = 195PS
 ** = 180PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	9	3,8 - 4,2				
1000	12	6,7 - 7,6				
	15	9,5 - 10,6				
200	9	2,1 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1100	14,3-15,1	1100	14,7	1150 1180 1210 1250	14,4-14,7 5 -12,6 0 - 8 0	420	0	100 200 300 320	6 -8,1 3,3-5,7 0 -1,2 0	500 650 800	15,8-16 15,2-15,7 14,7-15,1
Breakaway not before 1170											

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1130	89,5 - 91,5	600	1000 600	92,7 - 95,7 93,5 - 97,0	100	ca. 20 mm RW

Checking values in brackets

D13

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DAJ

B. Governor Settings

KHD 12,6 f

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	mm			rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation A!

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
y 1	1130 86,0 - 89,0	600	1000 600	90,0 - 93,0 92,5 - 95,5	100	ca. 18 mm RW	
z 2	1130 79,5 - 81,5	600	1000 600	83,5 - 86,5 82,5 - 86,5			

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	mm			rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation A!

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	

En Checking values in brackets

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KRU 5,8 h

Edition 2.64

En

PE 4 A 85 C 320 LS 2043 RQ 400/1950 AA 390 D
LS 2043 z,y,xRQ 400/1900 AA 212 D*

supersedes 1.63
company Krupp
engine D 459

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,8 - 0,1 mm (from BDC) RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,5 - 4,9	0,4			
	6	2,2 - 3,0				
	12	8,9 - 9,5				
	9	2,6 - 3,4				
200	21	14,9 - 17,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

AA 390 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Test specifications Control rod travel mm	Control rod travel rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
1900	13,8-14,6	1900	14,2	1950 1980 2000 2020 2100	13,8-14,2 8,5-13,6 4 - 12 0 - 9,8 0	720	0	300 400 500 550 620	6 - 8 4,2-6,4 1,5-4 0 - 2,5 0	600 1000 1400 1700	15,9-16,8 15,4-15,8 14,6-15,1 14,2-14,4

Torque-control travel
on flyweight assembly dimension a =

0,55

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
LS2043				1200	98,5 - 100,5	100	21 mm RW	
1900	96,5 - 97,5		1200	1600 1950	99,5 - 102,5 mind. 96,5			

Checking values in brackets

D15

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DA5

B. Governor Settings

KRU 5,8 h

-2-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	
		Control rod travel mm	Control rod travel mm	rev/min	rev/min		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1650	13-13,8	1650	13,4	1900 1220 1940 1960 2050	13,2-13,4 9,4-13,4 5 - 12 0 - 10 0	730		300 400 500 600 630	6,2-8,1 4,3-6,5 1,8-4,2 0 - 1,2 0	700 800 1000 1400 1600	15,6-16,2 15,4-16 15 - 15,5 13,9-14,4 13,4-13,9

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	Control rod travel	
1	2	3	4	5	6	6	7	6	
1850	91,0 - 92,0		1200	1200 1500 1880	95,5 - 97,5 89,5 - 91,5 mind. 89,5	100	21 mm RW		
1850	81,0 - 82,0		1200	1200 1500 1880	84,0 - 86,0 83,0 - 85,0 mind. 79,5	100	21 mm RW		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	
		Control rod travel mm	Control rod travel mm	rev/min	rev/min		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	Control rod travel	
1	2	3	4	5	6	6	7	6	
1850	76,0 - 77,0		1200	1200 1500 1880	79,0 - 81,0 78,0 - 80,0 mind. 74,5	100	21 mm RW		

En

Checking values in brackets

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 6,81

Edition 10.66

En

PE 6 A 80 C 321 RS 2044

RQ 200/1200 AA 516 D
RQ 200/1250 AB 604 R*

supersedes 9.64
company: Büssing
engine: S 7(150 PS)
S 7(132 PS)*

* (132 PS) See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	7,2 - 8,0	0,4			
	6	1,2 - 2,0				
	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

RQ 200/1200 AA 516 D

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min		Full-load speed regulation Setting point Control rod travel rev/min				Idle speed regulation Setting point Control rod travel rev/min				Torque control Control rod travel rev/min	
1	2	3	4	5	6	7	8	9	10	11	12
1200	14,6-15,4	1200	15,0	1250	14,8-15,0	420	0	100	6,4-8,1	850	15,8-16,0
				1270	9,0-14,0			200	3,8-6,0	950	15,4-15,8
				1300	0 - 9,5			250	1,7-4,1		
				1350	0			320	0	1050	15,0-15,4
Breakaway not before n = 1200											

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min		Fuel delivery characteristics rev/min		Starting fuel delivery Idle speed Control rod travel rev/min	
1	2	3	4	5	6	7	
150PS	76,5 - 78,5	500	800	78,5 - 81,5	100	ca. 18,5 mm RW	
1200			500	73,5 - 77,5			./.

Checking values in brackets

D17

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B Governor Settings

RQ 200/1250 AB 604 R*

②

Checking of slider PRG check		Full-load speed regulation				idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
450	15,7-16,3	450	16,0	1270	15,6-16,0	440	0	100	6,6-8,1	-	-
				1300	9,0-14,5			200	4,0-6,2		
				1340	0 - 8,5			300	0 - 2		
				1390	0			340	0		
Breakaway not before n = 1270											

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40 C (104 F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	5	6
*132PS 1250	61,0 - 63,0	1250			100 ca. 16 mm RW

Checking values in brackets

Testoil-ISO 4113

* Note: When carrying out repairs, the fuel-injection equipment

PE 6 A 80 C 321 RS 2044 Y

RQ 200/1200 AB 516 DR

is to be altered to the equipment indicated below!

PE 6 A 80 C 321 RS 2044

RQ 200/1250 AB 604 R

This does however only apply to the equipment of
the 132 bhp version!

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 h

Edition 1.71

En

PES 6 A 85 C 412 RS 2046 RQV 200-1100 AA 515 D
 RS 2046 Z*
 RS 2046 RQV 200-1100 AA 508 D

supersedes 3.67
 company: M A N
 engine: D 2146 M 1
 D 2146 M 11 *
 172PS
 180PS*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,4 - 13,1				
200	6	0,2 - 0,9				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			1
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	7	8	9	10	11	
ca.66	1100 1150 1200 1300	15,0-18,0 9,0-13,2 3,0- 9,2 0					ca.10	150 250 400 550 720	7,1-8,0 4,0-6,2 2,7-3,8 1,2-2,6 0	1100 700 500	0 0,1-0,3 0,9-1,1	
							3a					

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a	6	5
1	2	3	4	5	6	8
Z	1080	96,5 - 99,5	1120	700	90,5 - 94,5	
Y	1080	89,5 - 91,5	1120	600	90,5 - 93,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 7,2 c

Edition 2.64

En

PES 6 A 80 C 412 RS 2051 RQV 250-1250 AA 514
* RQV 250/600-900/1250 AA473

supersedes

company

engine

MAN
D 0836 M 2

* See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5				
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 250-1250

Upper rated speed Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Intermediate rated speed Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Lower rated speed Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Sliding sleeve travel rev/min	Sliding sleeve travel mm
1	2	3	1a	2a	4	7	8	9	10	11
ca .66	1250	15 - 18				ca .10	100	7,1 - 8		
	1300	10,2-14,8					200	4,9-7,1		
	1350	5,2-11,3					300	3 - 3,8		
	1400	0 - 7,6					450	2,2-3,8		
	1450	0 - 3,8					600	1,1-2,4		
	1500	0					790	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1250	68,5-70,5	1260-1280		./.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

D20

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The numbers denote the sequence of the tests

B. Governor Settings

RQV 250/600 - 900/1250

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	Control rod travel rev/min
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11
62+1,5	900	17,6- 23				10+1,5	100	6,6-8		
	1100	15					200	5,2-7,4		
	1250	14,8-15,2					400	3,6-4		
	1300	8,2-12,8					600	2,5-4		
2a	1360	0 - 6,2					700	0 - 2,2		
	1410	0					760	0		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery		5	4a	Idle stop
Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	rev/min	Note: changed to ...	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	Control rod travel mm
	1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

D21

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,1 g

Edition 9.64

En

PE 6 A 80 C 412 RS 2005 RQ 200/1250 AA 398 D
RS 2005 Z 1300 AA 398 D*

supersedes
company:
engine:
4.62
Henschel
522 DPL
(150 PS)
522 TAF-T
(144 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	6	2,2 - 3,0	0,4			
	9	5,5 - 6,0				
	15	11,5 - 12,8				
	200	6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 200/1250 AA 398 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Test specifications rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1200	14,4-15,2	1200	14,8	1270 1290 1320 1370	14,5-14,8 9,0-14,0 0 - 9,0 0	420	0	100 150 200 250 320	6,0-8,0 5,0-7,0 3,3-5,7 1,3-4,0	800 900 1000	15,8-16,0 15,4-15,8 14,8-15,3

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1230	72,0-74,0	800	800 600	74,5 - 77,5 71,5 - 75,5		100	mind. 9,9 . .	

Checking values in brackets

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D22

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B. Governor Settings

RQ 200/1300 AA 398 D*

HEN 6,1 g

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Control rod travel	Control rod travel
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,3-15,1	1250	14,7	1320	14,4-14,7	430	0	330	0	750	16,0
				1340	9,3-14,1			300	0 - 2,0	800	15,8-16,0
				1360	2,5-11,2			200	4,3-6,6	900	15,4-15,8
				1380	0 - 7,9			100	6,7-8,1	1000	15,0-15,4
				1400	0 - 4,4					1100	14,7-14,9
				1430	0					1250	14,7

Torque-control travel
on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	4	5	6	7

RS2005Z

1280	61,0 - 63,0	700	1000	63,5 - 66,5
			700	64,0 - 67,0

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Control rod travel	Control rod travel
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	4	5	6	7

En Checking values in brackets

Testoil-ISO 4113

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 MAN 8,7g
(8,7h)
Edition 2.64

En

PES 6 A 85 B 421 LS 2031

RQ 200/1000 A 428 D
MAN-Nr. 225

supersedes 4.62
company M A N
engine D 1546MTU2S
(180 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
950	13,8-14,4	950	14,1	1000 1020 1040 1080	13,8-14,1 5 - 13 0 - 8 0	410	0	100 150 200 250 310	7 - 8,1 5,7-7,8 3,8-6 1,2-3,8 0	400 600 800	15,8-16 15 - 15,4 14,3-14,6

Torque-control travel
on flyweight assembly dimension a = 0,6 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
980	104,5 - 106,5	500				

Checking values in brackets

D24

929

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①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HEN 6,1 n

Edition 2.64

En

PE 6 A 80 B 412 RS 2005 RQV 200-1250 A 443 D
 RS 2005 z* RQV 200-1300 A 443 D

supersedes

company

Henschel

engine

522 DPL

522 TAF

* See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in _____.

Testoil-ISO 4113

B. Governor Settings

RQV 200-1250

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm	Control rod travel rev/min	①a	Intermediate rated speed			Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Sliding sleeve travel ① rev/min	
				②a	④	⑤					
65+1,5	1250	15 - 18					10+1,5	100	7 - 8	1250	0
	1300	10 - 14,2						200	5 - 7	1100	0,1-0,3
	1350	5 - 10,4						400	2,5-3,8	900	0,4-0,6
	1400	0 - 6,4						600	1,2-2,5	700	0,6-0,8
	1490	0						830	0	500	0,7-0,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④b		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7	8	9	
1230	72,0 - 74,0	260	800	74,5 - 77,5	To be specified by customer				
			600	71,5 - 75,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

E1

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B. Governor Settings

ROV 200-1300 / PE

HEN 6,1 n
RS 2005 z

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
66+1,5	1300	15 - 18						10+1,5	100	6,6-8	1300	0
	1350	10,8-15							200	4,5-6,8	1200	0,1-0,3
	1400	5,8-11,8							300	3,2-3,8	1000	0,4-0,6
	1450	0 - 8,2							400	2,8-3,8	800	0,6-0,8
	1500	0 - 4,6							600	1,4-2,8	600	0,7-0,9
	1550	0							830	0		

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	1	rev/min	4a	rev/min	5	6	rev/min	cm³/1000 strokes	8	Control rod travel mm
1	2	3		4	4	5	6	7	7	8	9
1280	62,0 - 64,0	1310 - 1320			1000 700 500	63,5 - 66,5 64,0 - 67,0 59,5 - 63,5			To be specified by customer		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	1	rev/min	4a	rev/min	5	6	rev/min	cm³/1000 strokes	8	Control rod travel mm
1	2	3		4	4	5	6	7	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

E2

t2

En

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,0 a
Edition 6.67

En

PES 6 A 85 B 412 RS 2026	RQ 250/1250 A420D,484D,MAN-Nr.273	supersedes 2.64
PES 6 A 85 C 412 RS 2144	RQ 250/1250 AB 557 DL	company M A N
RS 2144	RQ 250/1050 AAV 8115 D* ./.	engine D 0836 HM3U(150PS) HM5U(150PS) HM3U*(130PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1200	14,0-14,8	1200	14,4	1250	14,0-14,4	540	0	100	6,4-8,1	500	15,7-16,2
				1280	8,0-13,0			200	5,2-7,4	700	15,2-15,7
				1300	3,0-11,0			300	3,0-5,2	900	14,8-15,2
				1320	0 - 8,8			400	0 - 2,0	1100	14,4-14,7
				1380	0			440			

Torque-control travel 0,5 mm on flyweight assembly dimension a =

Speed regulation. At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	5	6	7
1230	71,5 - 73,5	700	700	70,5 - 73,5	250	6 mm RW

Checking values in brackets

E3

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E3

B. Governor Settings

RQ 250/1050 AAV 8115 D *

MAN 7,0 a

-2-
2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Setting point Control rod travel rev/min	Control rod travel mm	Test specifications		Control rod travel rev/min	Control rod travel mm
		Control rod travel mm	rev/min	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
1	2	3	4	5	6	7	8	9	10	11	12
1000	14,5-15,1	1000	14,8	1070	14,2-14,5	560	0	100	7,2-8,1	500	15,7-16,3
				1100	8,0-12,8			200	6,9-8,0	750	14,8-15,2
				1130	0 - 8,8			300	3,7-5,9		
				1190	0			460	0	1000	14,6-15,0

Torque-control travel
on flyweight assembly dimension a

0,5 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm	
rev/min	cm³/-1000 strokes	rev/min	Control rod stop mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3		4	5	6	7	8	9	10
1050	73,5 - 75,5			700	700	76,0 - 79,0				

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Setting point Control rod travel rev/min	Control rod travel mm	Test specifications		Control rod travel rev/min	Control rod travel mm
		Control rod travel mm	rev/min	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm	
rev/min	cm³/-1000 strokes	rev/min	Control rod stop mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3		4	5	6	7	8	9	10

E4

En

Checking values in brackets

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 OMB 4,4a

Edition 6.65

En

PES 4 A 85 C 410 RS 2090 .. RS 2090,z	EP/RSV 250-800 A 4 B 182 D -875 A 4 B 182 D	supersedes company engine	11.64 OM-Brescia OM/CO 2 D/45 D/60
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All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,3			
	6	1,3 - 2,1				
	15	12,4 - 13,1				
200	6	0,2 - 0,9				

Adjust the fuel delivery from each outlet according to the values in 

B. Governor Settings

EP/RSV 250-800 A 4 B 182 D

1 Upper rated speed rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	rev/min
ca. 54	800	12	without auxiliary spring	ca. 30	250	7	780 0
	840	8,2			100	19 - 21	650 0,3-0,5
2a	870	5,1	with auxiliary spring		200	8,1-9,1	500 0,6-0,8
	850	6,2-8,2			250	6,7-7,3	
	900	2,3-3,9			400	3 - 5	
	950	0,3- 2			600	0 - 1	
	1000	0,3 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min	6 Rotational-speed limitat Note changed to) rev/min 3	3a Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	5 Idle stop Control rod travel mm 8
780 58,0 - 60,0	810 - 820	600 58,5 - 60,5 500 56,5 - 59,5	100 mind. 19 mm RW	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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E5

B. Governor Settings

EP/RSV 250-875 A 4 B 182 D

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control		
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	
ca .49	875	12				ca .22	250	7	850	0	
	890	9,4	without auxiliary spring				100	19 - 21	700	0,2-0,4	
	910	5,6					200	10 - 12	600	0,4-0,6	
2a	900	6,4-8,6	with auxiliary spring				250	6,7-7,3	500	0,5-0,7	
	950	1,8-3,3					400	1,3-4,6			
	990	0,3-1,4					600	0 - 1			
	1050	0,3 - 1									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
850	62,0-71,0	880 - 890	600	62,25-65,25	100	mind.			
			500	60,5 - 63,5		19 mm RW			
850	68,0-70,0	880 - 890	600	67,0 - 69,0	100	mind.			
			500	65,5 - 68,5		19 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control		
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	
2a											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery		5	4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

E6

En

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 DAI 5,7 k
Edition 3.67

En

PES 6 A 80 C 410 RS 2085 Z EP/RSV 300-1300 A 1 B 439 DL
RS 2164 Z
RS 2194 Z

supersedes
company
engine

Daimler-Benz
OM 352 (100PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,8	0,4			
	6	1,8 - 2,6				
	15	10,4 - 11,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	Control rod travel rev/min mm		
1	2	3	4	5	6	8	10	11	
ca .73	1320	16,0	without auxiliary spring	ca .28	300	7,5	1300	0	
	1350	12,5			100	19 - 21	1150	0	
	1390	6,8			300	7,2-7,8	1000	0,4-0,6	
②a	1380	6,3-9,8	with auxiliary spring		400	4,8-6,1	800	0,9-1,1	
	1450	1,1-3,9			500	0,8-4,2	400	0,9-1,1	
	1559	0,3-1,0			650	0 - 1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	⑤ Idle stop Control rod travel mm				
1	2	3	4	5	6	7	8	9
1300	45,5-47,5	1320	1000 800 500	44,0 - 47,0 45,0 - 48,0 41,0 - 44,5	100 (14,2-14,4mmRW)	7,9 - 9,9	300	7,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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E7

E7

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 c

Edition 10.65

En

PES 6 A 80 C 410 RS 2085 RQV 300-1000/1425 AB 530 DL
 RS 2085 Z /1475 AB 555 DL
 RS 2085 Y AB 561 DL

supersedes 4.65
 company Daimler-Benz
 engine OM 352
 126 PS
 Y 110 PS
 Z 100 PS

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop. Measure pump with suction-gallery flushing (overflow valve)!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0				
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

RQV 300-1000/1425 AB 530 DL

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	3a	7	8	9	10
68+1,5	1400	12,0-15,4	62+1,5	1000	12,0-14,6	10+1,5	200	7,8-8,0	1000	0	
	1450	8,0-12,5		1100	5,2- 8,2		300	6,0-6,8	800	0,3-0,5	
	1500	3,4- 9,6		1200	5,2- 5,6		350	5,0	500	0,6-0,8	
	1550	0 - 6,6		1400	1,7- 4,8		400	3,2-3,9			
	1660	0		1490	0		600	0,8-2,0			
							740	0			

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5a	6	7	8	9
1400	56,5 - 58,5	1425		1000 800 500	54,0 - 57,0 53,0 - 56,0 47,5 - 51,5	100	13,2-13,8 mm RW	700	./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

TestoII-ISO 4113

E8

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EP

B. Governor Settings

RQV 300-1000/1475 AB 555 DL, 561 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel 1
1	2	3	2a	4	5	6	7	8	9	10	11
68±1,5	1450	12,0-15,0	62±1,5	1000	12,0-14,8	10±1,5	200	7,6-8,0	1020	0	
	1500	8,0-12,6		1050	9,0-11,8		300	6,1-6,8	900	0,3-0,5	
	1550	3,5-10,0		1100	5,2- 8,4		350	5	700	0,8-1,0	
	1600	0 - 7,0		1250	5,4		400	3,3-3,9	500	1,1-1,3	
	1710	0		1450	1,0- 4,0		600	0,7- 2			
				1520	0		730	0			

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2			Rotational-speed limitation intermediate speed 2b		Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min	cm³/1000 strokes	3	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9
1450	41,0 - 43,0	1475	1000	38,5 - 40,5	100	14,2-14,8	700			
			800	39,5 - 42,5		mm RW				
			500	36,0 - 39,5						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel 1
1	2	3	2a	4	5	6	7	8	9	10	11
Y	1450	45,5 - 47,5		1475	1000	44,5-47,5					
				800	45,0-48,0						
				500	41,0-44,5						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2			Rotational-speed limitation intermediate speed 2b		Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min	cm³/1000 strokes	3	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

E9

E9

En

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 FOR 4,2 c

2. Edition

En

PES 4 A 85 C 410/3	RS2309	EP/RSV 300-1400 AOB594DL (1)	supersedes	8.73
D 210	RS2378	644DL	company	Ford England
PES 6 A 85 C 410/3	RS2314	EP/RSV 300-1400 AOB595DL (2)	engine	Parent-Bore
		645DL, 702DL		254 (1)
PES 6 A 85 C 410/3	RS2314	EP/RSV 300-1400 AOB593DL (3)	646D1, 703DL	363 (2)
				380 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5+0,1

mm (from BDC)

Port closing difference between control-rod travel 9 and 21 4-5°

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery "D" cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,3	9	4,9 - 5,5	
	6	1,3 - 2,1				
	15	12,3 - 13,1		6	0,1 - 0,9	
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed	④ Control-lever deflection in degrees	Lower rated speed		③ Torque control		
	Control rod travel mm	Control rod travel mm rev/min			Control rod travel mm	rev/min		Control rod travel mm	rev/min
1	2	3		7	8	9	10	11	
300-1400 A0 B594D, 644D	ca.70	1400 12,0	1)		ca.23	325 6,8	1400 0		
		1520 9,2	**			200 19 - 21	800 0,6-0,8		
		1650 5,8				325 6,5-7,1			
		1580 7,0-8,2				500 2,2-4,3	400 1,1-1,3		
		1700 3,6-5,3	***			680 0 - 1			
		1940 0 - 1							
300-1400 A0 B595D, 645D	(2)	702D							

ca.70	1400	12,0		ca.23	325	6,8	1400	0
	1570	8,0	**		200	19 - 21		
	1650	5,8			325	6,5-7,1	800	0,4-0,6
	1550	7,9-8,9			500	2,1-4,2	400	0,9-1,1
	1750	2,2-4,2	***		680	0 - 1		
	1820	0 - 1						
300-1400 A0 B593D, 646D (3), 703D	ca.70	1400	12,0 **	without auxiliary spring	ca.23	325 6,6	1400 0	
		1570	8,0		200	19 - 21		
		1650	5,8		325	6,3-6,9	900	0,4-0,6
		1550	7,9-8,9 ***		500	2,2-4,2	400	0,9-1,1
		1750	2,2-4,2	with auxiliary spring	680	0 - 1		
		1820	0 - 1					

Testoil-ISO 4113

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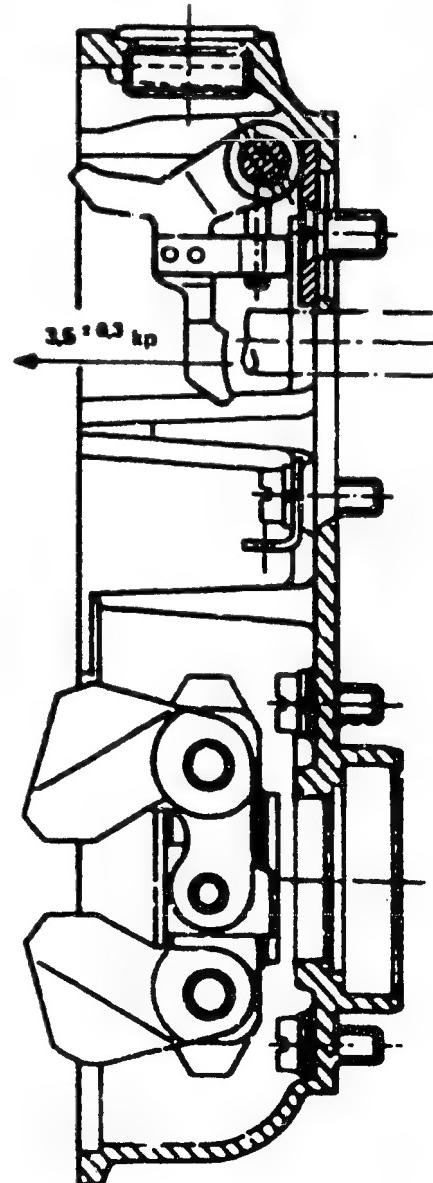
C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7
** 254 (1)		1470:					
1400 56,5-58,5		0,5 - 1,0 mm RW	*	600	54,0 - 57,0	100	min. 20 mmRW
						325	7,9 - 11,9
** 363 (2)		1470:					
1400 47,0-49,0		0,5 - 1,0 mm RW	*	600	41,5 - 44,5	100	min. 20 mmRW
						325	7,9 - 11,9
** engine 380 (3)		1470:					
1400 53,0-55,0	*	0,5 - 1,0 mm RW less than column 2		600	48,0 - 51,0	100	min 20 mmRW
						325	7,9 - 11,9

Test sequence:

With this assembly, the control rod cannot be blocked for basic adjustment, since there is no thread on the pump end face. The following test sequence is thus required:

1. Temporary basic setting by means of full-load stop of governor (without torque-control retainer). Speed-control lever to full - $n = 1000 \text{ min}^{-1}$. CRT 9 mm. - and $n = 200 \text{ min}^{-1}$, CRT 6 mm, speed-control lever on idle and with idle stop.
2. Set start of delivery at CRT 9 mm and start-of-delivery difference.
3. Governor test and full-load setting.
(3.1 and 3.3 only for 644 D, 645 D, 646 D).
- 3.1 Use spring balance to check disengaging force of cold-start device at 0 min^{-1} (at inner starting lever at control-rod boss level with governor cover removed). See sketch!
If necessary, retension leaf spring!
- 3.2 Governor test and full-load adjustment as prescribed in WPP 001/4 - 1st Supplement.
- 3.3 At idle speed, set stop screw of starting lever to 20.0 - 20.5 mm control-rod travel.
Switching - from starting to full-load control-rod travel - must take place at $n = 800-1000 \text{ min}^{-1}$.



② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,7 m

2. Edition

En

PES 6 A 95 C 420 LS 2328 RQ 200/1050 AB782DR (1)
 (421) 200/1050 AB848DR (2)*
 (D) 200/1100 AB782DR (3-4)*

supersedes 3.72
company: M A N

D 2156 HM 11/51/52 U
(1 - 192 PS)

D 2156 HMXU 036/37/38
* (2 - 192 PS)

D 2356 HM 51/52 U
(3 - 230 PS)

D 2356 HMXU 062/63/66
* (4 - 230 PS)

* Items 2 and 4 - engine with standard nozzle-holder assembly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	8,4 - 9,0	0,5	9	7,5 - 8,0	
	6	4,0 - 5,0		6	3,2 - 4,2	
	15	16,3 - 17,8		-----	-----	
200	6	1,4 - 2,6		6	0,5 - 1,4	

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

200/1050 AB782 DR (1)

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1070 1100 1150 1200	15,8-16,0 10,0-15,0 0 - 8,7 0	570	0	100 200 300 470	6,6-8,1 5,4-7,5 3,4-5,6 0	-	-

Torque-control travel
on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	Control rod stop	Fuel delivery characteristics		Starting fuel delivery		Control rod travel
		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	
1	2	3	4	5	6	7
1050	108,0-110,0	1050	700	104,5 - 107,5	100	mind. 18mm RW
					200	6 mm RW

Checking values in brackets

11.73

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E13

B. Governor Settings

200/1050 AB848DR (2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Setting point	Control rod travel
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1070	15,0-15,4	570	0	100	6,6-8,1	650	15,8-16,0
				1110	9,6-13,8			200	5,4-7,5		
				1150	0 - 8,8			300	3,2-5,6		
				1200	0					800	15,4-15,6

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7
1050	101,5 - 103,5		500	800 500	103,5 - 106,5	100	mind. 20 mmRW
						200	6 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Setting point	Control rod travel
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1120	15,6-16,0	550	0	100	6,6-8,1		
				1150	9,0-14,2			200	5,4-7,3		
				1180	0 - 10			300	3,3-5,3		
				1240	0			450	0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7
1100	125,0-128,0		500	800 500	124,0 - 129,0 max. 122,5	100	mind. 18mm RW 6mm RW

(increase by ± 1,0 cm³!)

En Checking values in brackets

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 16,0 a

2. Edition

En

PE 10 A 90 D 520/5 LS 2362 (1)	RQ 250/1250 AB 832 D	supersedes	4.73
PE 8 A 90 D 320 LS 3272 (2)	RQV 250-1250 AB 841	company:	M A N
	AB 852 D	engine:	D 2530 MF (1-320PS) D 2538 M..MF.. (12,8-2-256 PS)
See BMP 101/1012			
Cam sequence and angular spacing:			
10- 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2 - 10			
0-45 -72 -117-144-189-216-261-288-333-360° (1)			

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 - je 45° (2)
 Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Cyl. 10 (1)
 Cyl. 8 (2)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	9	5,7 - 6,2	0,4			
1000	6	2,2 - 3,2				
200	9	3,5 - 4,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ .. AB 832 D (1 u. 2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
600	15,7-16,3	600	16,0	1270	15,6-16,0	560	0	150	6,9-8,1	-	-
				1320	8,3-13,3			250	6,2-7,4		
	*	Sect. C, col.	2	1380	0 - 7,2			350	2,2-4,5		
				1450	0			460	0		

Torque-control travel
on flyweight assembly dimension a = 0 mm * Speed regulation: At 1300 = 0,5 - 1,5 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1250	101,0-103,0 (102,0-104,0)	1250	500	max. 97,0	100	13,4 - 14,4
					250	7 mm RW

Checking values in brackets

②

Testoil-ISO 4113

E15

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11.73

E15

B. Governor Settings

RQV .. 841, 852D (1 u. 2) *

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		1
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	4	7	8	9	1
ca .50	1270	14,4-17,4	-	-	-	-	ca .13	50	7,7-11,0	200	0,5-1,2
	1320	9,8-14,4						150	6,6-9,8	480	3,2-4,0
	1400	1,0- 8,6						250	4,2-7,2	800	4,8-5,2
	1500	0					(3a)	350	0 -3,4	1270	8,3
								410	0	1420	End
										1510	(11)

Torque control travel a = mm 841; 0 MM = 852 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6
1250	101,0-103,0	1290-1305: 1mmRW less than column 2	500	max. 97,0	100 13,4-14,4
					250 7 mm RW
					Change-over point 180-100 U/min

Checking values in brackets

* 1 mm less control rod travel than col. 2

* RQV governor with special design - "variable idle stage" - adjustment in accordance with test instructions WPP 001/4, 6 and 7th Supplement: Set sliding-sleeve travel up to 500 min⁻¹ by means of shims beneath centre spring - maximum of 2 per governor side permitted.

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
Gauge pressure = bar	Gauge pressure = bar	mm	

En

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 8,7 a
Edition 6.68

En

PE 6 A 85 C 320 RS 2200; Z, Y RQ 250/1150 AB 606 DR
RQV 200-1150 AB 608 DR

supersedes
company: K H D
engine: F 6 L 814(156 PS)
(150 PS)
(140 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1150 AB 606 DR

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	3
1	2	3	4	5	6	7	8	9	10	11	12
1100	14,7-15,3	1100	15,0	1170 1200 1230 1290	14,7-15,0 7,0-11,0 0 - 8,5 0	500	0	100 200 300 400	6,2-8,1 4,7-6,9 2,0-4,4 0	700 800 900	15,8-16,0 15,4-15,8 15,0-15,2

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	Control rod stop		rev/min	cm³/-1000 strokes	6	cm³/1000 strokes/mm	Control rod travel
1	2	3	3	4	5	6	7	6
1150	78,5 - 80,5		700	1000 700	80,5 - 83,5 81,5 - 84,5	100	ca. 18 mm RW	./.

Checking values in brackets

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Geschäftsbericht K.H. Kundendienst. Kfz-Ausrüstung.
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B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	①a ②a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
ca .66	1150	15,0-18,0		-	-	-		ca .10	100	7,0-7,6		1150	0
	1200	9,6-14,0							200	4,3-6,6		900	0,4-0,6
	1240	5,5-10,6							300	2,6-3,4		700	0,9-1,1
	1300	0 - 6							500	1,2-2,6		400	1,1-1,2
	1370	0							730	0			

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)				Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery Idle switching point			Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	②	②b	④a	⑤a	⑤b	⑥	⑥	⑧	⑨	⑤	Control rod travel rev/min mm
1	2	3				4	5	6	7	8	9		
1150	68,0 - 70,0	700				1000	72,5 - 75,5						
						700	75,5 - 79,5						

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	①a ②a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)				Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed			Starting fuel delivery Idle switching point			Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	②	②b	④a	⑤a	⑤b	⑥	⑥	⑧	⑨	⑤	Control rod travel rev/min mm
1	2	3				4	5	6	7	8	9		

Checking values in brackets

* 1 mm less control rod travel than col 2

En

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 d

Edition 3,67

En

PES 6 A 95 C 410 RS 2071

RQV 200/600-800/1050 AA 469D

supersedes

2.64

RQV 200 - 1050 AA 512 D

company

M A N

engine.

D 2146 MT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,95 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,0	0,4			
	6	4,0 - 5,0				
	15	16,3 - 17,8				
	200	1,4 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV..AA 469 D

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel mm 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
62+1,5	1040	14,8-15,2				10+1,5	100	6,4-8,0	820	0
	1080	11,0-15,2					200	4,2-6,2	750	0,3-0,5
	1120	6,0-11,6					400	3,8		
	1160	0 - 7,8					540	3,6-4,0	650	0,7-0,9
	1200	0 - 3,8					600	2,0-4,0	600	0,9-1,1
	1240	0					720	0		

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②	Rotational-speed limitation intermediate speed ②b rev/min 3	Fuel delivery characteristics high idle speed ⑤a rev/min 4	Starting fuel delivery idle switching point ⑥ rev/min 6	Torque-control travel Control rod travel mm 5 rev/min 8
rev/min 1	cm³/1000 strokes 2	rev/min 4	cm³/1000 strokes 5	rev/min 8
1030	116,0-119,0	1050-1060	700 1050	117,0-121,0 115,5-119,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

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E19

B. Governor Settings

RQV .. AA 512 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1	
1	2	3	2a	4	5	6	4	7	8	9	3	10	11
ca.65	1050	15,0-18,0		-	-	-	ca.10	100	6,8-8,0	200	5,0-7,0	300	3,0-3,8
	1100	8,7-13,3						450	1,8-3,1	600	0,2-1,3	680	0
	1150	2,8- 9,0						1000	0	800	0,7-0,9		
	1200	0 - 4,4						600	0,9-1,1				
	1250	0											

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics ⑤a high idle speed ⑤b			Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel 1	
1	2	3	2a	4	5	6	4	7	8	9	3	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics ⑤a high idle speed ⑤b			Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	1	2	3	4	5	6	7	8	9	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 HEN 6,5 a
Edition 3.69

En

PE 5 A 85 C 412 RS 2247 RQ 250/1300 AB675DL**
PE 4 A 85 C 412 RS 2248 RQ 250/1300 AB665DL*
EP/RSV..A4B276DL,..291DL
..A7B298L, ..A1B499DL ./.

supersedes 5,2a(12.68)
company: Henschel
engine: 551
541*(5,2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			** Note: Governor with obliterated or modified type designation has been altered by Henschel to version RQ 250/1300 AB675DL. Fit new nameplate when performing repairs!
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

RQ .. AB675DL**

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	Setting point Control rod travel mm	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	15,7-16,3	1250	16,0	1300	15,6-16,0	610	0	180	6,4-8,1	-	-
				1350	9,6-13,8			250	5,3-7,4		
				1380	5,2-11,0			350	3,2-5,3		
				1420	0 - 7,4			510	0		
				1490	0						

Torque-control travel
on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics rev/min	Starting fuel delivery Idle speed Control rod travel mm
rev/min	cm³/-1000 strokes	3	4	6
1	2		5	7
1300	74,5 - 76,5	1300		100 ca. 16 mm RW . /.

Checking values in brackets

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B. Governor Settings

RQ.. AB665DL*

HEN 6,5a

(2)

Checking of slider PRG check			Full-load speed regulation			Idle speed regulation			Torque control		
Setting point		Test specifications	Setting point		Test specifications	Setting point		Test specifications	Control rod travel		
rev/min	Control rod travel mm	Control rod travel rev/min mm	rev/min	Control rod travel mm	Control rod travel rev/min mm	rev/min	Control rod travel mm	Control rod travel rev/min mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1320	15,5-16,0	520	0	150	7,3-8,1	-	-
Breakaway not before n = 1320				1350	8,5-14,2			250	5,0-7,2		
				1380	0 -10,0			350	1,2-3,5		
				1440	0			420	0		

Torque-control travel
on flyweight assembly dimension = 0 mm

B. Governor Settings

EP/RSV ...

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
250-1100 A 4 B 276 DL										
ca.72	1100	16,0				ca.29	250	6,0	1080	0
	1150	10,5	*				100	19 - 21		
	1190	4,9					250	5,7-6,3	800	0,4-0,6
	1160	7,6-10,5					400	2,0-3,9		
	1200	3,2- 5,6	**				560	0 - 1	350	1,2-1,4
	1300	0 - 1								
250-1100 A 4 B 291 DL										
ca.72	1100	16,0				ca.29	250	6,0	1080	0
	1150	10,6	*				100	19 - 21		
	1180	6,4					250	5,7-6,3	950	0,3-0,5
	1160	8,0-10,8					400	2,0-3,9		
	1200	3,4- 5,4	**				560	0 - 1	350	0,6-0,8
	1320	0 - 1								
250-900 A 7 B 498 L										
ca.60	900	16,0				ca.25	250	6,0	880	0
	940	11,4	*				100	19 - 21		
	970	6,8					250	5,7-6,3	400	0
	950	8,0-11,0					320	2,6-4,2		
	1000	2,0- 3,3	**				430	0 - 1	300	1,2-1,8
	1080	0 - 1								
250-1200 A 1 B 499 DL										
ca.72	1200	16,0				ca.29	250	6,0	1180	0
	1250	12,0	*	without auxiliary			100	19 - 21		
	1300	6,8	spring				250	5,7-6,3		
	1280	7,5-10,1					400	2,2-4,0	400	0
	1350	2,0- 4,8	** with auxiliary				580	0 - 1		
	1450	0 - 1	spring							

For full-load deliveries with EP/RSV governor, refer to Henschel sheet supplied with every engine.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 7,8 b

Edition 6.69

En

PE 6 A 85 C 412 RS 2253, Z	RQ 250/1300 AB674 D,675 D	supersedes	12.68
RS 2253	RQV250/1300 AB652 D	company:	Henschel
RS 2253, Z	RQV250-750/1300 AB 705	engine:	561
EP/RSV ... See HEN 5,2 a		"Z"	160 PS 170 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 \pm 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ ... AB 674 D, 675 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm	Control rod travel mm		
Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	rev/min		
rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	1	2	3	4
1250	15,7-16,3	1250	16,0	1320	15,6-16,0	630	0	200	6,2-8,1		
				1350	11,0-15,0			300	4,5-6,6		
Breakaway not before n = 1320				1380	6,2-12,4			400	1,8-4,2		
				1420	0 - 8,4			530	0		
				1490	0						

Torque-control travel
on flyweight assembly dimension a = 0 mm 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery idle speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
"Z" 1300	76,5 - 78,5	700	700	69,0 - 72,0
1300	82,5 - 84,5	800	800	80,5 - 83,5
(increase by $\pm 0,5$ cm ³ !)				

Checking values in brackets

E23

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E23

B. Governor Settings

RQV ...

AB 652 DL

HEN 7,8 b

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	
ca.66	1300	15,0-18,0	-	-	-	-	ca.10	150	7,1-8,0	1300	0			
	1380	8,2-13,0						250	4,2-6,6	1000	0,3-0,5			
	1460	0 - 7,3						400	2,7-3,8	600	0,4-0,6			
	1560	0						600	1,3-2,6	820	0			

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	6	7	8	9
1300	78,0 - 80,0	1320		800 600	78,0 - 81,0 74,5 - 77,5	100	18,0-18,6		
** (increase by ± 0,5 cm³ !)									

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV ... AB 705 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	
ca.66	1300	13,0-15,7	ca.52	800	12,5-13,5	ca.10	150	6,6-8,0	-	-				
	1350	9,0-12,7		900	7,3- 9,7		250	5,3-7,0						
	1400	4,7- 9,6		1050	0,4- 0,8		400	2,4-4,2						
	1450	0 - 6,2		1340	0		500	0,5-1,5						
	1540	0					620	0						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	6	7	8	9
"Z"									
1300	76,5-78,5	1320		700	69,0-72,0	100	18,0-18,6		
1300	82,5-84,5			800	80,5-83,5				
**									

Checking values in brackets

* 1 mm less control rod travel than col. 2

E24

E.24

En

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 SCL 5,7a

Edition 12.70

En

PES 6 A 85 C 410 RS2268,
U..Z*

EP/RSV 250-950 A1 B524D
250-1000 A1 B561D

supersedes
company
engine

Schlüter
SDM ...W6*
(see page 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,5 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	6	1,3 - 2,1	0,4			
	9	4,9 - 5,5				
	15	12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-950A1 B524D / 250-1000 A1 B561D

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed 4 5 6	Control-lever deflection in degrees 7	Lower rated speed		Torque control Control rod travel rev/min	
	Control rod travel mm	Control rod travel mm rev/min			rev/min	Control rod travel mm		
ca.48	950	12,0	without auxiliary spring	ca.20	250	5,5	930	
	970	9,2			150	19 - 21	700	
2a	1000	4,4			250	5,2-5,8	0,2-0,4	
	980	6,6-8,5			350	2,9-4,1	350	
	1020	2,6-4,0	with auxiliary spring		530	0 - 1	0,9-1,1	
	1100	0 - 1						

ca.50	1000	12,0	without auxiliary spring	ca.20	250	5,5	980	0
	1020	9,5			150	19 - 21		
	1050	4,5			250	5,2-5,8	800	0,5-0,7
	1030	5,5-8,0			350	2,9-4,1	350	0,9-1,1
	1080	2,5-3,2	with auxiliary spring		530	0 - 1		
	1150	0 - 1						

Testoil-ISO 4113

F1

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	
1	2	3	4	5	6	7	
SDM 100 W6 - 70 PS -	Pe S 2268 *		524D **	DLLA 150 S 501			
950 41,0 - 43,0		970	700 40,5 - 43,5 500 42,0 - 45,0	100 ca. 20 mmRW			
SDM 100 W6 - 75 PS -	Pe S2268 U *		524D **	.. S 501			
950 45,0 - 47,0		970	700 46,0 - 49,0 500 47,0 - 50,0	100 ca. 20 mmRW			
SDM 104 W6 - 80 PS -	Pe S2268Z *		524D **	.. S 501			
950 48,0 - 50,0		970	700 51,5 - 54,5 500 50,5 - 53,5	100 ca. 20 mmRW			
SDM 106 W6 - 90 PS -	Pe S2268Z *		524D **	.. S 501			
950 57,0 - 59,0		970	700 62,0 - 65,0 500 55,5 - 58,5	100 ca. 20 mmRW			
SDM 108 W6 - 100 PS -	Pe S2268 *		561D **	.. S 501			
1000 66,0 - 68,0		1020	700 66,0 - 69,0 500 59,0 - 62,0	100 ca. 20 mmRW			
SDM 110 W6 - 110 PS -	Pe S2268Z *		561D **	.. S 501			
1000 76,0 - 78,0		1020	700 77,5 - 80,5 500 68,5 - 71,5	100 ca. 20 mmRW			
SDM 104 W6 - 80 PS -	Pe S2268W *		524 D **	.. S 476			
950 46,5 - 48,5		970	700 47,0 - 50,0 500 47,5 - 50,5	100 ca. 20 mmRW			
SDM 106 W6 - 90 PS -	Pe S 2268V *		524D **	.. S 475			
950 53,5 - 55,5		970	700 61,5 - 64,5 500 54,5 - 57,5	100 ca. 20 mmRW			
SDM 108 W6 - 100 PS -	Pe S2268Y *		561D **	.. S 475			
1000 59,0 - 61,0		1020	700 61,5 - 64,5 500 57,5 - 60,5	100 ca. 20 mmRW			
SDM 110 W6 - 110 PS -	Pe S2268X *		561 D **	.. S 475			
1000 67,5 - 69,5		1020	700 73,5 - 76,5 500 66,0 - 69,0	100 ca. 20mm RW			

* with governors

** and nozzle

En

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 HAN 10,2 b
Edition 8.69

PE 6 A 90 C 320 RS2123

EP/RSV 250-750 A4B228D

(1)

supersedes
company
engine

3.66
Hanomag
D 961 ..

EP/RSV 250-900 A4B227D

(2)

B234D

EP/RSV 250-900 A4B264D

(3)

B278D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,3 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 B 228 DR (1)

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca .44	750	16	without auxiliary spring	ca .22	250	5,5	730	0	700	0 - 0,2
	790	10			100	19 - 21	650	0,4-0,6	600	0,8-1,0
	820	5			250	5,2-5,8	550	0,8-1,0	500	1,0
2a	800	7,0-9,8	with auxiliary spring		300	4,2-4,8				
	820	4,1-6,8			400	0,6-3,0				
	870	1,1-3,1			500	1,0				
	930	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 Idle stop	4a Control rod travel mm	
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
730	85,0 - 87,0		760-780	600 500	91,0 - 94,0 92,0 - 95,0			./.

Checking values in brackets

* 1 mm less control rod travel than col 2

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F3

B. Governor Settings

EP/RSV 250-900 A 4 B 227 DR; 234 DR (2)

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	Control rod travel rev/min 10	Control rod travel mm 11
ca. 56	900	16	without auxiliary spring			ca. 25	250	7	880	0
	950	11					100	19 - 21	800	0,7-0,9
2a	980	7	with auxiliary spring				250	6,7-7,3	500	1,3-1,5
	970	6,0 - 10					370	5,3-6,1	600	0 - 1
	1000	3,9 - 6,0					430	1,3-4,2		
	1040	1,4 - 4,0								
	1130	0,3 - 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop
rev/min 1	cm³/1000 strokes 2	rev/min 4	rev/min 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	cm³/1000 strokes 9	rev/min 10	Control rod travel mm 11
880	85,5 - 87,5	910 - 920	700 500	95,2 - 98,2 95,0 - 98,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

EP/RSV 250-750 A 4 B 264 D, 278 D (3)

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	Control rod travel rev/min 10	Control rod travel mm 11
ca. 56	900	16,0	without auxiliary spring			ca. 25	250	7,0	880	0
	950	11,6					100	19 - 21	700	0,1-0,3
2a	980	7,6	with auxiliary spring				250	6,7-7,3	500	0,4-0,6
	960	8,8-11,8					400	2,7-4,8	600	0 - 1
	1000	4,6 - 6,6								
	1150	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop
rev/min 1	cm³/1000 strokes 2	rev/min 4	rev/min 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	cm³/1000 strokes 9	rev/min 10	Control rod travel mm 11
880	83,5 - 85,5	910 - 920	700 500	80,5 - 83,5 79,0 - 82,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

F4

En

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 MB 8,7 c

2. Edition

En						
PE 6 A 90 C 410 RS2124X,Y	RQ 300/1275 AB658D	(1)			supersedes	5.72
RS2124	RQ 450/1275 AB658D	(2)			company:	Daimler-Benz
.. D..	RS2124Z,Y RQ 300/1125 AB713D	(3)			engine:	OM 360 ..
	RS2124Z,Y RQ 300/1275 AB713D	(4)				
	RS2124 RQ 450/1275 AB713D	(5)				
	RS2124Z,Y RQ 300/1275 AB812D	(6), RQ 300/1250 (6)				

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke RS2124 RQ 450/1250 AB812D (7)
 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" u. "D" cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,4 - 6,9	0,4			
	6	2,8 - 3,8				
	15	13,8 - 15,3				
200	9	3,7 - 4,9				

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

RQ 300/1275 AB 658 D (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1290	14,3-14,7	560	0	200	6,6-8,1	750	15,8-16,0
				1320	9,5-13,4			300	4,1-6,3		
				1350	3,4-10,5			400	0,5-2,8	900	15,4-15,6
				1380	0 - 7,4			460	0	1100	14,8-15,0
				1440	0						
At n = 1300 governor must break away by 0.5 - 1.5 mm from full load!											

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	Control rod stop		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	6	7
1250	79,0 - 81,0		450	1000	77,5 - 80,5	100	ca. 16mmRW
				800	79,5 - 82,5		
				500	71,5 - 74,5		
(increase by ± 1,0 cm ³ !)							

Checking values in brackets

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B. Governor Settings

450/1275 AB658D (2)

VDT-WPP 001/4 MB 8,7 c

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min		rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,7-16,3	700	16,0	1300	14,4-14,7	670	0	380	6,5-8,1	850	15,8-16,0
				1330	7,0-12,5			450	3,8-6,3		
				1360	0 - 8,6			500	1,1-4,1	1000	15,3-15,6
				1420	0			570	0	1150	14,7-15,0

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3		4	5	6	7
(2) 1250	76,5-78,5		700	1000 700	75,0 - 78,0 75,0 - 78,0	100	ca. 16 mm RW

At n = 1290-1310 governor must break away by 1.0 mm from full load!

B. Governor Settings

300/1125 AB713S (3)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min		rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1050	15,1-15,7	1050	15,4	1130	15,0-15,4	570	0	200	7,8-8,1	600	15,8-16,0
				1180	8,0-13,0			300	4,7-7,1		
				1230	0 - 8,0			400	0,9-3,6	700	15,4-15,6
				1310	0						

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3		4	5	6	7
(3) 1100	83,5 - 85,5		450	700 500	86,0 - 89,0 76,5 - 79,5	100	ca. 16 mm RW
(3-Z) 1100	77,0 - 79,0		450	700 500	78,0 - 81,0 69,0 - 72,0	100	ca. 16 mm RW
(3-Y) 1100	71,5 - 73,5		450	700 500	68,0 - 71,0 61,0 - 64,0	100	ca. 16 mm RW

At n = 1140-1160 governor must break away by 1.0 mm from full load!

Testoil-ISO 4113

F6

En

Checking values in brackets

B. Governor Settings

VDT-WPP 001/4 MB 8,7 c
300/1275AB713(4)

-3-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	rev/min			
1250	15,1-15,7	1250	15,4	1280	15,1-15,4	560	0	200	6,5-8,1	600	15,7-15,9
				1330	7,6-12,8			300	4,1-6,3		
				1370	0 - 8,6			400	0,3-2,7	680	15,4-15,6
				1440	0			460	0		

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed		(6)	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes / mm	Control rod travel mm	
(4)	1250	84,5 - 86,5	450	1000	83,0 - 86,0	100	ca. 16 mm RW				
				700	84,0 - 87,0						
				500	74,5 - 77,5						
(4-Z)	1250	78,5 - 80,5	450	1000	76,0 - 79,0	100	ca. 16 mm RW				
				700	78,0 - 81,0						
				500	69,0 - 72,0						
(4-Y)	1250	73,0 - 75,0	450	1000	69,0 - 72,0	100	ca. 16 mm RW				
				700	68,0 - 71,0						
				500	61,0 - 64,0						

Checking values in brackets

At n = 1290-1310 governor must break away by 1.0 mm from full load!

B. Governor Settings

450/1275 AB713 D (5)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	rev/min			
700	15,7-16,3	700	16,0	1290	15,0-15,4	670	0	380	6,5-8,1	770	15,8-16,0
				1320	9,0-14,0			450	3,8-6,3		
				1360	0 - 9,0			500	1,1-4,1	850	14,4-14,7
				1420	0			570	0		

Torque-control travel
on flyweight assembly dimension a

0,2 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery idle speed		(6)	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	cm³/1000 strokes / mm	Control rod travel mm	
(5)	1250	84,5 - 86,5	700	1000	83,0 - 86,0	100	ca. 16 mm RW				
			700	84,0 - 87,0							

At n = 1290-1310 governor must break away by 1.0 mm from full load!

Testoil-ISO 4113

F7

EN
Checking values in brackets

B. Governor Settings

300/1250 AB812D (6) VDT-WPP 001/4 ME 8,7c

-4-

(2)

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation						Torque control	
		Setting point		Test specifications				Setting point		Test specifications					
Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	600	15,7-16,3	600	16,0	1280	15,7-16,0	560	0	200	6,5-8,1	-				
				1340	7,6-11,8				300	4,1-6,3					
				1380	0 - 7,5				400	0,3-2,7					
				1440	0				460	0					
1	600	15,7-16,3	600	16,0	1270	15,7-16,0	560	0	200	6,5-8,0	-				
				1320	9,4-13,6				300	4,2-6,3					
				1380	0 - 8,1				400	0,4-2,9					

Torque-control travel on flyweight assembly dimension a

0

1470

0

Speed regulation At

460

0

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	4	5	5	6	6	7	6	7
(6)											
1250	85,5 - 87,5		800		800		83,5 - 86,5	100		ca. 16mm RW	
(6-Z)											
1250	84,0 - 86,0		800		800		80,0 - 83,0	100		ca. 16mm RW	
(6-Y)											
1250	81,0 - 83,0		800		800		76,0 - 79,0	100		ca. 16 mm RW	

** At n = 1290-1310 governor must break away by 1.0 mm from full load!

Checking values in brackets

B. Governor Settings

450/1250 AB812D (7)

Checking of slider PRG check		Full load speed regulation						Idle speed regulation						Torque control	
		Setting point		Test specifications				Setting point		Test specifications					
Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	600	15,7-16,3	600	16,0	1270	15,6-16,0	650	0	380	6,0-8,1	-				
				1300	10 - 15				420	4,4-7,0					
				1340	0 - 10				500	0 - 3,2					
				1410	0				550	0					

Torque-control travel on flyweight assembly dimension a

0

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes / mm	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	4	5	5	6	6	7	6	7
(7)											
1250	85,5 - 87,5		800		800		83,5 - 86,5	100		16 mm RW	

**

Increase by ± 0,5 cm³!

En

Checking values in brackets

F8

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MB 8,7 d

2. Edition

En

PE 6 A 90 C 410	RS 2124	RQV 300-1125 AB720D, 721D, 735D (1)	supersedes	12.71
(D)	RS 2124	RQV 300-1275 AB720D, 721D (2)	company:	Daimler-Benz
	RS 2124	RQV 300-1250 AB814D, 815D (3)	engine	OM 360

Pump 2124 with EP/RSV governor MB 8.7 g - h

Series version (1)
Special version (2...3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,4 - 6,9	0,4			
	6	2,8 - 3,8				
	15	13,8 - 15,3				
200	9	3,7 - 4,9				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

RQV 300-1125 AB 720D, 721D, 735D (1)

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Control rod travel mm 6	Control rod travel rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6					
ca. 68	1125	15,0-17,6					ca. 12	150	6,7-8,0	1125 8,3
	1150	13,0-16,2						250	5,7-7,4	
	1200	8,3-13,2						400	3,2-5,1	1100 0
	1300	0 - 6,3						500	1,0-3,4	500 0,4-0,6
	1390	0								

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics (5a)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	Control rod travel rev/min 8	Control rod travel mm 9
(1) 1100	83,5-85,5	1150-1160*	700 500	86,0 - 95,0 76,5 - 79,5	100	ca. 12	1125 7200	/
						Change-over point 150-180 U/min	700	/.7210 7350

Checking values in brackets

Increase by ± 1,0 cm³!

* 1 mm less control rod travel than col. 2

Testoil-ISO 413

F9

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B. Governor Settings

RQV 300-1275 AB720D, 721D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10	11		
ca.68	1275	15,0-17,7					ca.12	100	7,0-8,0	1275	8,3		
	1350	9,7-13,8						250	5,7-7,4				
	1400	5,6-11,0						400	3,4-5,0	1250	0		
	1470	0- 6,0						550	1,2-2,8			500	0,4-0,6
	1580	0						640	0				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Intermediate I speed ⑤			
rev/min	cm³/1000 strokes	3	rev/min	4	rev/min	cm³/1000 strokes	6	cm³/1000 strokes	8	rev/min	control rod travel mm	9
1	2				4a	5	6	7		8		
(2) 1250	84,5-86,5		1300-1310*	1000 700	83,0-86,0 84,0-87,0		100	ca.12		700		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

RQV 300-1250 AB814D, 815D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10	11		
ca.67	1250	15,0-18,0					ca.12	200	6,3-8,0				
	1340	8,3-13,4						400	3,4-5,0	1250	8,1		
	1400	3,8-10,0						600	0 - 1,2				
	1440	0 - 7,7						640	0				
	1560	0											

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Intermediate I speed ⑤			
rev/min	cm³/1000 strokes	3	rev/min	4	rev/min	cm³/1000 strokes	6	cm³/1000 strokes	8	rev/min	control rod travel mm	9
1	2			4a	5	6	7		8			
(3) 1250	85,5-87,5		1300-1310*	800	82,0-85,0		100	ca.12		650/ 700/ 814D 815D		

Checking values in brackets

* 1 mm less control rod travel than col 2

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F10

En

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 7,2 d

2. Edition

En.

PES 6 A 85 C 412 RS 2104	RQV 250-1250 AA549DL (MAN-Nr. 274)	supersedes	12.66
.. RS 2139	.. 549DL, .. 753DL (1)	company:	M A N
PES 6 A 85 C 412 RS 2139	RQV 250-1250 AB 603 L (2)	engine	D 0836 HM..(1)
PES 6 A 85 C 412 RS 2139	RQV 250-1250 AB 610DL		D 0836 HM70A (2)
	.. 753DL (3)		71A
			D 0846 HMN..
			HM..)3)
			HMX

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4	9	4,1 - 4,5	
	6	1,3 - 2,1		6	0,6 - 1,4	
	15	12,4 - 13,1		-	- - -	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed						Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel	①a	Degree of deflection of control lever	rev/min	Control rod travel	④	Degree of deflection of control lever	rev/min	Control rod travel	③	①		
1	2	mm	②a	4	5	mm	⑥	7	8	mm	⑨	10	mm	11
ca. 65	1250	15,0-18,0	-	-	-	-	④	ca. 10	100	7,6-8,2	1250	8,2		
	1280	12,0-15,8							250	5,0-7,0				
	1340	5,8-11,0							400	3,4-3,8				
	1400	0 - 6,4							600	1,8-3,2				
	1480	0							810	0	*			

* - (603L)

1,0 mm (549DL, 753DL) : 1200 = 0 mm RW
500 = 0,9-1,1 mm RW

0,8 mm (610DL) : 1200 = 0 mm RW
500 = 0,7-0,9 mm RW

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7

(1) Pe 2104, 2139 *	549DL, 753DL:						
1250 71,5 - 73,5 70,5 - 74,5	1260-1270	700	70,5 - 73,5 69,5 - 74,5	100 250	ca. 18,9 5,9		
**							

(2) Pe 2139 *	603L:						
1250 74,5 - 76,5 73,5 - 77,5	1260-1270	900	72,0 - 75,0 71,0 - 76,0	100 250	ca. 18,9 5,9		
**							

(3) Pe 2139 *	610DL, 851DL:						
1250 69,5 - 71,5 68,5 - 72,5	1260-1270	800	71,0 - 74,0 70,0 - 75,0	100 250	ca. 18,9 6,9		
**							

(→ 851 DL)

* with governors

** Switching point
200-130 min⁻¹
In line with customer
data (not for governor
610 DL)

**② Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 HEN 6,5 b

Edition 5.71

En

PE 5 A 90 C 412 RS 2247

PE 4 A 90 C 412 RS 2248*

RQ 250/1300 AB 745 DL

supersedes

company: **Henschel**

engine: 552 (5R1112-..)

542 (4R1112-..)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,5 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,4			
	6	2,5 - 3,4				
	15	13,5 - 14,8				
200	9	3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO
4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
650	15,7-16,4	650	16,0	1320	14,5-14,8	630	0	200	6,2-8,0	800	15,9-16,0
				1350	10,7-14,0			300	4,5-6,6		
				1420	0 - 7			400	1,9-4,2	1050	14,9-15,1
				1480	0			530	0		

Torque-control travel
on flyweight assembly dimension a = **0,35** mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	4	5	6	7	
1300	83,5 - 85,5	600	700 500	86,5 - 89,5 78,5 - 81,5	100	ca. 17 mm RW

Checking values in brackets

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Gas

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7

"542"*

1300 81,0-83,0 600 700 86,0 - 89,0 100 ca. 17 mm RW
500 78,5 - 81,5

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 PEN 4,7 c

Edition 6.65

PES 6 A 80 B 320 RS 535 EP/RSV 200-1250 A 1 A 330
RS 2012 B 330
RS 2082

En

supersedes 1.65
company Penta
engine TMD 47 B

Test with EFEP 35 C (B-line)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,4 - 6,8	0,3			2,5 + 0,1* (max. 2,2-2,9)
	6	0,3 - 1,0				
	9	2,9 - 3,6				
200	9	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control-lever deflection in degrees	Lower rated speed rev/min	Control rod travel mm	3 Torque control rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10
ca. 70	1250	16		without auxiliary spring	ca. 25	200	6	1230	0
	1300	11				100	19 - 21	400	0
	1350	4,6				200	5,7-6,3	250	1,2 - 1,8
2a	1300	10 - 12		with auxiliary spring		300	2 - 4		
	1350	3 - 7				450	0 - 1		
	1400	0 - 3							
	1450	0 - 1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	5 Idle stop Control rod travel mm
1	2	3	4	5
900	51,5-53,5	1260-1280	200 4,5 - 8,5 dispersion max. 1,2*	* In the event of greater scatter, initial tension of valve spring is to be altered accordingly. More initial tension produces more delivery

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 MWM 4,2 a

Edition 6.69

		En				
PES 4 A 75 B 410/3 RS 473z,y,x,w		EP/RSV300-1250A2A348 D		supersedes	7.60	
PES 4 A 75 B 410/3 RS 407,z,y,x,w		A 58 D,A 345D,A348 D		MWM		
PES 2 A 75 B 410/3 RS 477		A362 D		company	AKD 412V	
PES 4 A 75 B 410/3 RS 1057z,y,x,w		A385 D		engine	KD 412V	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45+0,1 mm (from BDC) RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,2 - 3,7				
	6	0,9 - 1,7				
	12	6,2 - 6,6				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed rev/min		Torque control rev/min	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9	10	11
ca.51	1250	16				ca.22	300	6	1200	0
	1340	9,7					100	19 - 21		
	1400	4,6					300	5,7-6,3	800	0,8-1,0
	1320	10 - 12					450	3 - 4,5	500	1,2-1,6
	1350	7 - 10					600	0 - 2,4		
	1400	3,4-6,6					700	0 - 1		
	1500	0 - 2,5								
2a	1600	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 rev/min	4a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4	5	6	7	8	9
1	2	3						

Checking values in brackets

* 1 mm less control rod travel than col 2

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

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VDT-WPP 001/4 KHD 19,0a

2. Edition

En

PE 12 A 90 B 520 RS 466	RQ 200/1150 AA 493 D	(1)	supersedes	2.69
C 520 RS 2087	RQ 200/1150 AB 493 D	(1)	company:	K H D
C 520 RS 2087Z	RQ 200/1150 AB 493 D	(2)	engine:	BF 12 L 714
C 520 RS 2087	RQ 200/1150 AB 784 D	(3)	(340 PS-1,3)	(310 PS- 2)
1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 8 - 9 - 4 - 12 - 1				
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°				

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,4				
	6	1,4 - 2,2				
	15	14,3 - 15,8				
	200	9				
200						

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ .. 493 D (1,2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel	Control rod travel	Control rod travel	Control rod travel	Control rod travel	Control rod travel
Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min
1130	13,1-13,8	1130	13,4	1150	12,5-13,5	440	0	100	6 - 8	450	15,6-16
				1160	9,8-13,5			200	3,3-5,8	600	15,3-15,6
				1180	0,4-11,7			300	0 - 2	800	14,7-15
				1200	0 - 8,4			340	0	1000	13,9-14,2
				1230	0 - 2,6						
				1250	0						

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	5	6	7
1130	92,0 - 94,0	600	600	99,5 -102,5	100	mind. 18 mm RW
			1000	97,5 -100,5		

Checking values in brackets

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B. Governor Settings

RQ .. 784 D (3)

KHD 19,0 a

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications	
		rev/min	mm	Control rod travel mm	rev/min			rev/min	Control rod travel mm	rev/min	Control rod travel mm
1100	13,5-14,3	1100	13,9	1150	13,7-13,9	430	0	100	6,0-8,1	400	15,8-16,2
				1180	4,5-12,0			200	3,5-6,0	800	14,7-15,0
				1200	0 - 9			300	0 - 1,8		
				1250	0			330	0	1000	13,9-14,2

Torque-control travel
on flyweight assembly dimension a = 0,65 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
1130	86,0 - 88,0		600	1000 600	91,0 - 94,0 94,5 - 97,5	100	ca. 16 mm RW	

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications	
		rev/min	mm	Control rod travel mm	rev/min			rev/min	Control rod travel mm	rev/min	Control rod travel mm

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
1150	92,0 - 94,0		500	1000 500	97,0 - 100,0 99,0 - 102,0	100	ca. 18 mm RW	

Checking values in brackets

Testoil-ISO 4113

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① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 19,0 b

Edition 2.69

En

PE 12 A 90 B 520 RS 466	RQV 250-750 A351, 480	(1)	supersedes	11.66
PE 12 A 90 C 520 RS2087	RQV 300-750 AA 480	(1)	company	K H D
RS2087	RQV200/750-1150AA559D	(2)	engine	B/A 12 L 714 (210PS - 1)
RS2087Z	RQV... AA559D	(3)		BF 12 L 714 (340 PS - 2)
				(310 PS - 3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,4				
	6	1,4 -- 2,2				
	15	14,3 - 15,8				
200	9	3,9 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 250-750 (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
ca .65	750	14 - 17,4					ca .10	150	7,4-8			
	760	13 - 16,2						200	6,2-8			
	800	4,8- 10,5						300	3,4-4,6			
	840	0 - 5,2						400	1,6-3,2			
	880	0						520	0			
							3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load ^{de very} Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥	Torque-control ⑤ travel Control rod travel mm ⑧		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3	4	5	6	7	8	9
730	66 - 68	760 - 770						

Checking values in brackets

* 1 mm less control rod travel than col. 2

G1

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B. Governor Settings

RQV 300-750 (1)

KHD 19,0 b

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66+1,5	750	15 - 18						10+1,5	250	7,2- 8			
	760	13 - 16,8							300	5,4-7,6			
	800	6 - 12							350	3 - 5,2			
	840	0 - 6							450	1,3-2,5			
	880	0							540	0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel			
rev/min	cm³/1000 strokes	②	rev/min	②b	rev/min	cm³/1000 strokes	⑤a	rev/min	cm³/1000 strokes	⑥	rev/min	Control rod travel mm
1	2	3	4	④a	5	6	⑤b	7	8	⑥	8	9
1130	95,5-97,5		1160-1170		800 600		104,0-108,0 97,5-101,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV 200/750-1150 AA 559 DR (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
ca.68	1150	15,0-18,2		ca.43	650	11,5-12,5		ca.10	100	6,3-8,0		1050	0
	1200	10,0-14,5			750	5,0-11,0			200	4,9-7,0		1000	0,4-0,6
	1250	4,5-10,7			800	2,0- 5,1			300	3,6-4,5			
	1300	0 - 6,5			900	0 - 1,9			500	3,6-4,0		900	0,7-0,9
	1380	0			970	0			700	3,6-4,0		800	0,9-1,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel			
rev/min	cm³/1000 strokes	②	rev/min	②b	rev/min	cm³/1000 strokes	⑤a	rev/min	cm³/1000 strokes	⑥	rev/min	Control rod travel mm
1	2	3	4	④a	5	6	⑤b	7	8	⑥	8	9
1130	86,0-88,0		1170		1000 600		91,0-94,0 94,5-97,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

G2

G2

**(2) Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

VDT-WPP 001/4 MAN 9,7 b

Edition 3.67

En

PES 6 A 85 B 412 RS 461
RS 2046

RQ 200/1050 A 367 D*
A 451 D
A 452 D
MAN-Nr.326 AA488 D

supersedes 2.64
company: M A N
engine: D 2146 MT

* (see BMP) 101/9 EP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,2 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

..A 367 D, --A 451 D

PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	6	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	10	11	Control rod travel mm
1000	14,6-15,4	1000	15,0	1050 1080 1100 1130 1190	14,6-15,0 9,0-14,0 5,5-11,6 0 - 8 0	560	0	100 200 300 400 460	6,4-8,1 5,2-7,2 3,0-5,3 0 - 2,2 0	650 800 900	15,7-16,0 15,1-15,6 15,0-15,2

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes		rev/min	rev/min		rev/min	cm³/1000 strokes/mm	
(..RS 461 + ..RS 2046)										
1030		120.0-123.0		700	700 1050	119,0-123,0 119,0-122,0				./.

Checking values in brackets

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B. Governor Settings

..AA 452 D, .. AA 488D

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Test specifications		Setting point rev/min	Control rod travel mm	Test specifications		Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm
		Control rod travel rev/min	mm			Control rod travel rev/min	mm				
1	2	3	4	5	6	7	8	9	10	11	12

1000	14,2-15,0	1000	14,6	1050	14,4-14,6	550	0	150	6,0-8,0	450	16,0-16,6
				1080	9,4-13,6			250	4,2-6,4		
				1100	5,6-11,4			350	1,6-4,0	700	15,6-15,9
				1140	0 - 6,5			450	0	900	14,7-15,0
				1190	0						

Torque-control travel on flyweight assembly dimension a : 0,45 mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1 mm less control rod travel

En

Testoil-ISO 4113

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,2a

(7,2b)

Edition 2.64

En

PES 6 A 80 B 412 RS 460
RS 2051

RQ 250/1250 A 362,366
MAN-Nr. 270 438,487

supersedes 10.62
company MAN
engine D 0836 M1
M2

Cam sequence 1-2-4-6-5-3 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,45 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,2				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Test specifications Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16	1250 1300 1350 1420	15,6- 16 10 -14,6 0 - 8,5 0			100 200 300 400 460	6,8-8,1 5,5-7,5 3,3-5,5 0 -2,5 0	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
1250		1250		250 RW 6,0 min

Checking values in brackets

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 MWM 6,2a

Edition 8.89

En

PE6A75B 410/3 LS 434Z,Y,X EP/RSV 300...1250 A2A345D
 PE8A75B 410/3 LS 435X,Y,Z A345 D
 PE6A75B 412/3 LS 479 A 348 D,A385D
 PE8AM75B412L 16 A345D

supersedes 7.60
 company M W M
 engine AKD 412 SV

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45+0,1 mm (from BDC) bei RW12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,7	0,3			
	6	1,4 - 2,2				
	21	10,4 - 12,9				
200	6	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Lower rated speed rev/min	Torque control				
Degree of deflection of control lever	Control rod travel mm			Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm rev/min			
1	2	3	4	7	8	9	10	11	
ca. 51	1250	16	without auxiliary spring	ca. 22	300	6	1200	0	
	1340	9,7			100	19 - 21			
	1400	4,6			300	5,7 - 6,3			
	1320	10 - 12			450	3 - 4,5			
	1350	7 - 10			600	0 - 2,4			
	1400	3,4-6,6			700	0 - 1			
②a	1500	0 - 2,5							
	1600	0 - 1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to rev/min	③ Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop Control rod travel mm				
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

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AKD 412 SV (6 cyl.)

Engine/pump speed min-1	Engine output bhp	Index	Full-load delivery on test bench at engine speed (min-1) and with delivery in cm ³ /1000 strokes***				Column 1-2	Column 4 ... 5	Co. 3 **
1000/500	35 37,5	y y	980	50	800	51	500	50	510
1200/600	42 45	z z	980	47	800	48	500	47	610
1500/750	52 57 63	z z x	980	47	800	48	500	47	760
1800/900	63 67 75	y y x	980	50	800	51	500	50	910
2000/1000	69 75 84	y y x	980	50	800	51	500	50	1010
2200/1100	82 90	y x	980	50	800	51	500	50	1110
2500/1250	105	*	1230	58	800	60	500	59	1260

AKD 412 AV (8 Cyl.)

			PE	P5	9 A...S	435			
1000/500	46,5 50	y y	980	50	800	51	500	50	510
1200/600	56 60	z z	980	47	800	48	500	47	610
1500/750	70 76 84	z z x	980	47	800	48	500	47	760
1800/900	84 90 100	y y x	980	50	800	51	500	50	910
2000/1000	92 100 112	y y x	980	50	800	51	500	50	1010
2200/1100	110 120	y x	980	50	800	51	500	50	1110
2500/1250	140	*	1230	58	800	60	500	59	1260

* No type-designation index - basic version as on front page

** Nameplate of governor altered to - or pay attention to nameplate
of engine!

*** Tolerance, Column 1...2 = ± 1.0 cm³/1000 strokes; column 4...5 = 1.5 cm³

In cases of doubt, full-load delivery can be determined from output, engine
speed (nameplate) and above table.

**(2) Test Specifications
Fuel Injection Pumps (2)
and Governors**

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VDT-WPP 001/4 BOS 5,4 f

Edition 10.64

En

PE 6 65 B 321 RS 399 RQ 200/1300 A 293 D

supersedes 15.5.59
company: Büssing
engine: S 5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	12	5,7 - 6,2	0,3	2	3	6
	6	1,4 - 2,1				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min	Test specifications Control rod travel mm	Setting point Control rod travel rev/min	Test specifications Control rod travel mm	Setting point Control rod travel rev/min	Test specifications Control rod travel mm	Setting point Control rod travel rev/min	Test specifications Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14-14,8	1250	14,4	1320	14 - 14,4	430	0	100	6 - 8,1	800	15,8-16
				1340	8 - 14			150	5 - 7,2	1000	15 - 15,4
				1360	1 - 11			200	3,4-6	1150	14,4-14,7
				1380	0 - 8			280	0 - 3		
				1430	0			330	0		

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	54,7-56,7		400	500	57,5 - 60,5			
				900	59,5 - 62,5			

Checking values in brackets

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 BOS 10,9 i
€ 10,9 k)
Edition 10.64

En

PE 6 A 90 B 312 LS 314

EP/RSV 200-1000 A1 A 114 D

supersedes
company
engine

5.61
Büssing
U 11/200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	10,3 - 10,7	0,4			
	9	6,0 - 6,5				
	200	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in 

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.53	1000	16	without auxiliary spring	200	6	980 0
	1050	11		100	19 - 21	700 0,1-0,3
	1080	6,6		200	5,7-6,3	300 0,2-0,4
2a	1050	9 - 12	with auxiliary spring	300	3,8- 5	
	1100	3,7- 6		400	0 -2,2	
	1150	0,5- 3,5		550	0 - 1	
	1250	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1000	118,5-120,5		1030-1040	500	116,5-120,5	100	mind.18mm	RW	
				700	115,5-119,5				
				900	119,0-123,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 VOL 4,7 c

Edition 4.65

En

PES 6 A 80 B 320 RS 535
RS 2012
RS 2082

RQV 200-1400 A 391/2
A 388/2

supersedes 4.64
company Volvo
engine TD 47 B

Test with EFEP 35 C (B-line)

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,4 - 6,8	0,3			2,5 + 0,1 (max. 2,2-2,9)
	6	0,3 - 1,0				
	9	2,9 - 3,6				
200	9	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
68+1,5	1400	18 - 21						10+1,5	100	6,5- 8		
	1450	14,4-18,4							200	4,5- 6		
	1500	10,5-15,6							300	3 -3,8		
	1600	2 - 9,5							400	2,2-3,4		
	1650	0 - 6							600	0,7-1		
	1750	0							810	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	high idle speed	5a	idle switching point	5
1	2	3	4	5	6	Control rod travel mm
900	51,5-53,5	1410-1430	200	4,5 - 8,5 dispersion max. 1,2	100 mind. 12,9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 6,8g

Edition 3.70

En

PE 6 A 80 B 312 LS 350

RQ 200/1200 A 316 D

supersedes

10.66

LS 2044, Z, Y

A 499 D ./.

company:

Büssing

engine:

U 7 -145

150 "Z"

132 "Y"

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	7,3 - 8,0	0,3			
	6	1,2 - 2,0				
	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings ..A 316 D

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1150	14,1-14,9	1150	14,5	1250 1260 1280 1300 1350	14,3-14,5 11,0-14,5 4,0-12,0 0 - 8,6 0	100 200 300 320	8	6,2-8,1 3,7-8,0 0 - 1,4 0	100 200 300 320	350 700 800 900	16,0-16,4 15,7-16,0 15,4-15,7 15,0-15,4

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel mm
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	4	5	6	7	
1200	74,5 - 76,5	700	700 500	73,5 - 76,5 73,5 - 76,5		

Checking values in brackets

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B. Governor Settings

..AB499DL

BOS 6,8g

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel mm	Control rod travel mm	rev/min	rev/min		Control rod travel mm	rev/min			
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1200	14,4-14,8	530	0	150	6,8-8,1	700	15,8-16,0
				1220	9,0-14,2			250	4,7-7,0		
				1250	0 - 9,5			350	1,0-3,9	850	15,3-15,6
				1310	0			430	0	1000	14,8-15,0

Torque-control travel
on flyweight assembly dimension a =

0,45 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	4	cm³/-1000 strokes	5	rev/min	cm³/1000 strokes / mm	
1	2									
1200	77,0 - 79,0			800	800	76,5 - 79,5		100	ca. 18 mm RW	
					500	76,0 - 79,0				
1200	67,5 - 69,5			800	800	68,5 - 71,5		100	ca. 16 mm RW	
					500	65,0 - 68,0				

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel mm	Control rod travel mm	rev/min	rev/min		Control rod travel mm	rev/min			
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed		Control rod travel
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	4	cm³/-1000 strokes	5	rev/min	cm³/1000 strokes / mm	
1	2									

Checking values in brackets

G17

E11

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 BOS 6,8h

Edition 10.64

En

PE 6 A 80 B 320 RS 350

RQ 200/1200 A 315 D

supersedes
company:
engine:

1.5.61
Büssing
Z 7

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	7,2 - 8,0	0,4			
	6	1,2 - 2,0				
	200	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1150	14,6-15,4	1150	15	1250 1260 1280 1300 1360	14,7- 15 12 - 15 6 -12,5 0 - 9,5 0	420	0	100 200 300 320	6,2-8,1 3,7-6 0 -1,5 0	350 700 800 900 1000	16 -16,6 15,9-16 15,3-15,8 15 -15,4 15 -15,1
Breakaway not before n = 1250											

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6
1	2	3	4	5	6
1200	74,0 - 76,0	500	800 500	73,0 - 76,0 70,5 - 73,5	

Checking values in brackets

G18

BOSCH

Geschäftsbericht KH. Kundendienst. Kfz-Ausrüstung.
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618

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 VOL 4,7 b

Edition 4.64

En

PES 6 A 75 B 320 RS 347
RS 378
RS 2050

EP/MZ 60 A 106
A 107
A 134

supersedes 3.8.61
company: Volvo
engine: D 47 A

Check helix pitch 5 and 10 mm, pump with "B-lines"
(EFEP 35 C). Refer to page 2 for test sequence!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	3,7 - 4,0	0,2			2,8 (max. 2,4-3,0)
	6	0,1 - 0,5				
	9	0,8 - 1,6				
200	9	1,0 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 413

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
	500-480	10	400	12,5	460	ca. 7	410 420 440 460		12,0-12,7 10,5-12,7 7,4-10,7 5,5- 8		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	Control rod stop rev/min	Fuel delivery characteristics			Starting fuel delivery Idle speed rev/min	Control rod travel mm
		rev/min	cm³/-1000 strokes	rev/min		
1	2	3	4	5	6	7
800	350 - 390	41,5 - 42,5	1200 200 60	Increase WS 9 - Scatter max. 3 Increase WS approx. 9 Scatter max. 1 Starting fuel delivery	13 119-129	

Checking values in brackets

Sequence of full-load adjustment and governor testing

1. Section C), columns 1 ... 3 (**Full-load adjustment**)
Idle test; increase WG until stated quantity has been attained.
The initial tension of the valve spring is to be altered accordingly in the event of major scatter;
Auxiliary spring not positioned!
(Leak test)
2. Section C), columns 4 ... 6
3. Section B), columns 2 ... 3
4. Section B), columns 8 ... 9 (**Governor test and setting of breakaway**).
The breakaway 410...430 mm WG is to be set by fitting shims (max. 2.5 mm) beneath governor spring. Columns 4 and 5 are no longer to be tested after setting full-load delivery.
5. Section B), columns 6 ... 7 (**Positioning of auxiliary spring**)

Testoil-ISO 4113

En

G20

G20

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 KAE 8,1 b

Edition 12.66

En

PES 6 A 85 B 410 RS 332	EP/RSV 250-1100 A1 A71D	supersedes
PES 6 A 85 C 410/3RS2000	EP/RSV 250-1100 A1 A71D	company
PES 6 A 85 C 410 RS 2143	EP/RSV 250-1100 A1 B180DL	engine
PES 6 A 90 C 410 RS 2161 (V 7732)	EP/RSV 250-1100 A1 B452DL (V8028 D)	Kaelble M 215a -SL M 215sT-SL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8,5 Ø

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery		Difference cm³/100 strokes	Control rod travel mm	Fuel delivery	Spring pre-tensioning (torque-control valve) mm
		②	cm³/100 strokes				
1000	9	6,5 - 7,0	③	0,4	⑤	⑥	⑦
	6	2,3 - 3,1	③				
	15	14,0 - 14,8	③				
200	6	1,3 - 2,2	③	④	⑤	⑥	⑦

Adjust the fuel delivery from each outlet according to the values in □

B. Governor Settings

EP/RSV ...A1 A71D, ...B 180 DL

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.64	1100	16,0	*	ca.27	250	6,0	1080	0	1080	0
	1150	12,0					100	19 - 21	800	0,3-0,5
	1200	6,5					250	5,7-6,3	650	0,6-0,8
	1170	8,0-11,2	**	ca.27	400	2,0-4,0	600	0 - 1	350	0,7-0,9
	1200	4,6- 8,2								
	1250	1,5- 4,2								
2a	1350	0 - 1								
	ca.64	1100	16,0	* without auxiliary spring	ca.27	250	6,0	1080	0	1080
	1150	12,2								
	1200	7,0								
	1200	4,8-8,6	** with auxiliary spring	ca.27	400	1,8-4,0	600	0 - 1	800	0,7-0,9
	1230	1,6-4,2								
	1350	0 - 1								

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15+0,1

mm (from BDC)

... (S 2161) 9 0
... (V 7732) 9 0

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,4 - 7,9	0,4			
	6	2,9 - 3,7				
	15	16,0 - 17,3				
200	6	1,1 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		4	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	10	Control rod travel mm	11	
1	2	3	4	5	6	7	8	9	10	11			
2a													

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat	Fuel delivery characteristics		Starting fuel delivery Idle		5	4a	Idle stop	
	Test oil temp. 40°C (104°F)	rev/min	Note	changed to 1 rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	6	7	rev/min	control rod travel mm
1	2	3	4	5	6	7	8	9				

Checking values in brackets

* 1 mm less control rod travel than col. 2

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 HEN 9,3 c
Edition 3.65

En

PE 6 A 90 B 321 RS 331
RS 2004

RQ 300/1100 A 350 D
AV 6686 D
A 397 D

supersedes
company:
engine:

8.62
Henschel
514DCU

Change governor A350 D ($a = 0.6$) to
V6686 D ($a = 1.0$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,9 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

AV 6686 D

B. Governor Settings

Checking of slider PRG check Control rod travel mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
rev/min	2	3	4	5	6	7	8	9	10	11	12
1050	12,8-13,4	1050	13,1	1120 1140 1150 1160 1210	12,5-12,9 6 -12 3 -10 0 -8,6 0	500	0	250 300 350 400	6,5-8,1 4 -6,8 0,5-3,5 0	400 700 1000	15,8-16,6 14,6-15 13,2-13,6

Torque-control travel
on flyweight assembly dimension a = 1,0 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2		4	5		6	7
1080	80,0 - 82,0		400	700 400	87,0 - 90,0 94,0 - 97,0	100	mind. 16mm RW

Checking values in brackets

Testoil-ISO 4113

G23

BOSCH

Geschäftsbericht KH. Kundendienst. Kfz-Ausrüstung.

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G23

B. Governor Settings

A 350 D A 397 D

HEN 9,3 c

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11	12
1050	13,7-14,5	1050	14,1	1120 1130 1160 1210	13,9-14,1 10,2-14,1 0 - 9,2 0	500	0	200 300 400	7,3-8,1 4 -6,8 0	400 600 800	15,7-16,6 15 -15,4 14,1-14,5

Torque-control travel
on flyweight assembly dimension a = 0,6 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7
1100	85,0 - 87,0		700	700 400	90,5 - 93,5 98,0 -102,0	100	mind. 16 mm RW

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	6	7

Checking values in brackets

G24

C24

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 REN 4,1 e

Edition 3.69

En

PE 4 A 75 B 321 RS 325

EP/RSV 250-1300 A 1 A 334

supersedes 10.68
company Henschel
engine 517 D 4 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,3			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	8	9
ca. 72	1300	16	without auxiliary spring	ca. 26	250	6	1280
	1350	10			100	19 - 21	400
	1390	4			250	5,7-6,3	290
②a	1350	8,5-11,2	with auxiliary spring		350	1 - 3,5	1,2-1,8
	1400	2 - 5,5			450	0 - 1	
	1450	0 - 2					
	1500	0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop Control rod travel mm
rev/min	2	3	6	7
1280	66,0-68,0	1310-1330		250

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 8,3 i

Edition 5.72

En

PE 6 A 70 B 412 RS 159	RQ 150/200	1050 A (A) 128D	(1)	supersedes	3.64
C 412 RS 1058				company:	M A N
B 412 RS 159	RQV 200-1050	A 210 D	(2)	engine:	D 1246 ..
C 412 RS 1058	RQV 200-1000	AB732 D	(3)	M3 -	(1)
				M -	(2)
				M -	(3)
				MV3 Faun	- (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,3 \pm 0,05$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	9	4,6 - 4,8	0,4			
1000	6	2,0 - 2,6				
	12	6,9 - 7,5		*		
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm
Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	rev/min	rev/min	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1050	14,5-14,7	480	0	100	7,0-8,5	400	16,0-16,4
				1080	7,0-13,0			200	4,8-7,0	600	15,9-16,0
				1120	0 - 7,3			300	1,4-4,0		
				1180	0			380	0	950	14,6-14,7

Torque-control travel
on flyweight assembly dimension a = 0,4 mm 1 mm less control rod travel

RQ 200/1050 ..

550	15,7-16,3	550	16,0	1050	14,6-14,8	520	0	100	5,5-7,5	400	16,0-16,6
				1080	7,0-13,2			200	4,0-6,0	600	15,9-16,0
				1120	0 - 8,0			400	0 - 0,6		
				1180	0			420	0	950	14,7-14,8

* Port closing difference between control-rod travel 12 mm and 21 2.5-3° camshaft.

H5

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung.
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H5

B. Governor Settings

RQV ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
200-1050	A210	D (2)						ca.10	100	6,8-8,0		
ca.65	1050	15,0-18,0	-	-	-				250	3,5-5,6	1000	0
	1100	8,7-13,4							300	1,2-2,6	850	0,5-0,7
	1180	0 - 6,2							640	0	700	0,9-1,1
	1250	0										

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	6	7	8	9
D 1246	M3 - Pe	.S159, 1058	**			128D - MAN-Nr.	51		
	Pe	.S159 **				210 D - MAN-Nr.	51	(0,9-1,9)	
980	80,0-82,0	700 (RQ)		700	80,0-85,0	100	ca. 21 mmRW		
				450	80,5-83,5				

Checking values in brackets

** with governors

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
200-1000	AB732D (3)							ca.10	100	7,3-8,0		
ca. 66	1000	15,0-18,0							200	5,0-7,3	1000	0
	1050	9,1-13,8							300	3,0-3,8	500	0,9-1,1
	1100	2,7- 9,4							500	1,3-2,5		
	1150	0 - 4,5							650	0		
	1190	0										

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	6	7	8	9
D 1246	MV3 - Faun	Pe ..S1058 **			732D (3)				
980	71,5-73,5	1020 (RQV)	700	70,5-73,5	100	mind. 20mmRW			
						Intermediate speed			

Checking values in brackets

* 1 mm less control rod travel than col 2

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KRU 7,2d
Edition 2.64

En

PE 5 A 85 B 320 LS 215,207 RQV 400-1700 A 294 D
496

supersedes 1.2.61
company Krupp
engine D 753M
D 459M

(see BMP) 120/4 EP

Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC; mark end of delivery on cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
	9	1,1 - 1,9				
200	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①		
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	①	
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66±1,5	1700	15 - 17,8						10+1,5	300	6,5-8	1700	0	
	1800	10,5-14,5						-	400	4,5-6,8	1500	0,2-0,4	
	1900	5 - 11							500	3 - 3,8	1200	0,6-0,8	
	2000	0 - 7							700	1,2-2,8	800	0,9-1,1	
	2200	0							900	0			

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	rev/min 8	Control rod travel mm 9
1700	79,0-80,0	1705-1720	1500	79,5 - 81,5			
			1200	81,0 - 83,0			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 KRU 5,8 i

Edition 10. 66

En							
PE 4 A 85 B 320 LS 207	EP/RSV 400-1900	A0 A101	(1)	supersedes			
PE 4 A 85 B 320 LS 207Z	EP/RSV 400-1700	A2 A110	(2)	company	Krupp		
PE 8 A 85 B 420 RS 459	EP/RSV 400-1700	A2 A110	(2)	engine	D 459		
PE 5 A 85 B 320 LS 496	EP/RSV 400-1700	A2 A110	(2)		D 573		
PE 8 A 85 C 420 RS 2068	EP/RSV 400-1799	A2B110R	(2)		D 710		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,1	0,3			
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings ..A 101

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm	rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11		
ca.	1900	16,0	without auxiliary spring	ca.21	400	6		1850	0			
	1980	12,2			200	19,0-21,0						
	2080	6,1			400	5,7- 6,3						
	2000	10,0-12,0	with auxiliary spring		500	3,7- 4,8						
	2080	3,8- 8,0			600	0,8- 3,2						
	2160	1,0- 3,6			750	0 - 1						
2a	2300	0 - 1										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1850	90,5 - 92,5	1910-1930				100	20mm RW	Adjustment (1)	
**	Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC; mark end of delivery on cylinder 1 (drive end).								

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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H8

H8

The numbers denote the sequence of the tests

..A 110 R
..B 110 R

1A

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.65	1700 1750 1800	16,0 11,6 6,2	without auxiliary spring with auxiliary spring			ca.21	400 150 400 500 600	6 19,0-21,0 5,7-6,3 1,5-3,6 0 - 1	1680 600 450	0 0 1,2-1,8
(5)	1800 1860 1950	4,4-7,6 1,3-3,4 0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8
1680	88,5-90,5	1710-1730	(6a)			100	10 mm RW	Adjustment (2)

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure (g.p.)

Pump/governor	Setting (g.p.)	Measurement bar (g.p.)	Control rod travel-diminution mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 5,8e (5,8f)

Edition 2.64

En

PE 4 A 85 B 320 LS 207 RQ 400/1800 A 212 D

supersedes 5.61
company: Krupp
engine: D 459 M

Set all cylinders to tappet clearance $0.3 + 0.05$ mm at TDC; mark end of delivery on cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1700	13-13,8	1700	13,4	1800 1840 1880 2000	13 - 13,4 5 - 13,4 0 - 10 0	300 400 500 600 700	7 - 8 5 - 7,8 3 - 6 0 - 3,5 0	700 900 1200 1500	16 - 17 15,6-16 14,7-15,2 13,4-14		

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm ³ /1000 strokes	Control rod stop	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1750	81,0 - 82,0	1200	1200 1500 1800	84,0 - 86,0 83,0 - 85,0 mind. 79,5	100	21 mm RW

Checking values in brackets

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② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001 DAI 5,1i (5,1k)

Edition 3.64

En

PES 6 A 80 B 410 RS 174

RQ 250/1300 A 368 D

supersedes

5.61

company:

Daimler-Benz

engine:

OM 321 mA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	11	12	
1450	14-14,8	1450	14,4	1500 1520 1540 1560 1640	14 - 14,4 10 - 14,4 5 - 12 0 - 9,5 0	510	0	100 200 250 300 410	6,3-8,1 4,8-6,9 3,6-5,8 2 - 4,5 0	500 700 900	15,6 - 16 15,1 - 15,4 14,4 - 14,8

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
1000	53,0 - 55,0	500	500 700 1480	52,0 - 56,0 53,5 - 56,5 55,0 - 58,5			

Checking values in brackets

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① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HEN 5,4 e

Edition 6.68

En

PE 6 A 70 B 412 RS 73, 114 RQV/650-900 A 71

supersedes 11.64
company Henschel
engine 512 DG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,6 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	Sliding sleeve travel ①	
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66+1,5	900	15 - 18			200	18,2-21			100	7,6-8,0			
	920	10 - 15			350	14,9-15,4			250	4,7-6,4			
	960	1 - 8,4	34+1,5		650	11 - 13,8			500	3,5-4,1			
	1000	0 - 2,2			800	2 - 3,4			700	0 - 1			
	1020	0			840	0			730	0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics ⑤a			Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	3	rev/min	4a	high idle speed ⑤b	rev/min	cm³/1000 strokes	6	cm³/1000 strokes	8	Control rod travel mm
1	2				4	5		6	7	8	9
900	58,0 - 60,0		900 - 920								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 MAN 3,9 a
Edition 2.69

PE 4 A 65 B 410 RS 234	EP/RSV 200- ... A1, A21, 69, 102	En	supersedes 2.64
RS 360		company	M A N
PE 4 A 65 C 410 RS 1072	EP/RSV 200-750 A1 B166, 512 ./. engine		D 0024 M ..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,4			
	6	1,4 - 2,1				
	18	9,7 - 10,6				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1000 A 1 A 21, 69, 102

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control			
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
ca.51	1000	16	without auxiliary spring	ca.21	200	6	100	19 - 21	980	0		
	1050	9,5			100	5,7-6,3		400				
②a	1090	4		with auxiliary spring	200	1,4-3,9	300	1,4-3,9	400	0		
	1040	9,6-12,4			450	0 - 1		250				
1080	3,4 - 7	0 - 1										
	1200											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to 1 rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop	④a Idle stop Control rod travel mm		
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
1	2	3	4	6	7	8	9
Full-load delivery see page 2!							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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B. Governor Settings

200-750 A 1 B 166, 512

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed rev/min		3 Torque control		
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	9	Control rod travel mm	Control rod travel mm	
ca.39 2a	750	16,0	without auxiliary spring			ca.18	200	6,0	730	0	
	790	10,6					100	19 - 21	370	0	
	815	6,3					200	5,7-6,3	250	1,2-1,8	
	800	6,6-10,2	with auxiliary spring				300	1,7-3,8			
	850	1,8- 3,5					400	0 - 1			
	940	0 - 1									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Test oil temp. 40°C (104°F)	Full-load stop		6 Note: changed to ...)	Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	4a Control rod travel mm
	rev/min	cm³/1000 strokes		rev/min	4	rev/min	5	rev/min	cm³/1000 strokes		
Nr.220	880	40,0-42,0		910				100	mind. 20mm RW	200	6,0
Nr.221	930	48,5-50,5		960						(→ B 512 L)	
Nr.222	730	50,5-51,5		760							
Nr.223	880	48,5-50,5		910							
Nr.224	980	46,0-48,0		1020							
Nr.225	-	-		-							
Nr.226	1180	51,5-53,5		1220							
Nr.227	-	-		-							
Nr.228	1180	45,0-48,0		1220							
Nr.229	1080	51,5-53,5		1120							
Nr.230	700	51,5-53,5		720							
Nr.231	880	51,5-53,5		910							
Nr.232	-	-		-							
Nr.233	-	-		-							
Nr.234	-	-		-							
Nr.235	1230	44,5-46,5		1270							

Testoil-ISO 4113

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 HEN5,4d(5,4e)
Edition 6.68

En

PE 6 A 70 B 321 LS 94
412 LS 146,1000

RQ 200/1200 A 77 D
A 66 D, 241D

supersedes 11.64
company: Henschel
engine: 512 DJ
6 R 1012 J
6 R 1013 J

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1000	12	6,7 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Setting point Control rod travel rev/min 3	Full-load speed regulation				Setting point Control rod travel rev/min 7	Idle speed regulation				Torque control Control rod travel rev/min 11
		Control rod travel mm	Control rod travel mm	Test specifications rev/min 5	Test specifications rev/min 6		Control rod travel mm	Control rod travel mm	Test specifications rev/min 9	Test specifications rev/min 10	
1150	14,3-15,1	1150	14,7	1200	14,5-14,7		100	6,8-8,2	400	16-16,2	
				1220	10 - 14,7		150	5,7- 8	600	15,9-16	
				1260	1 - 9,5	430	0	250	2,1-4,8	800	15,3-15,5
				1300	0 - 4		300	0 - 2,2	900	14,9-15,1	
				1330	0		330	0			

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min		Fuel delivery characteristics rev/min		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	4	5	6	7	Control rod travel mm
1000	55,5 - 57,5		500	500 1180	55,5 - 58,5 54,0 - 58,0		./. .

Checking values in brackets

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①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 k

Edition 3.69

En

PES 6 A 95 C 412 RS 2108
 (C 410)RS 2108 Y
 ..RS 2108 W
 ..RS 2108 V

RQV 200-1050 AB 514 L
 -- AB 609 L
 RQV 200-1100 AB 514 L
 -- AB 609 L
 EP/RSV 200-750 A7 B 429 L
 B 509 L

supersedes 6.67
 company M A N
 engine D 2146 HM..
 D 2146 M..
 D 2156 HM..
 D 2356 HM..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	8,4 - 9,4	0,5			
	6	4,0 - 5,0				
	15	16,6 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

200 - 1050

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10	11		
63+1,5	1050	15,0-17,8	-	-	-	-	10+1,5	100	6,2-8,0	-	-		
	1100	10,2-14,4						200	4,4-6,7				
	1150	5,0-10,7						300	3,0-3,8				
	1200	0 - 6,6						500	1,5-2,8				
	1280	0						700	0				

200 - 1100

66+1,5	1100	15,0-18,0	-	-	-	10+1,5	200	6,5-8,0	-	-
	1150	9,8-14,2					320	3,2-3,8		
	1200	4,0-10,0					450	2,2-3,8		
	1250	0 - 5,8					550	1,2-2,7		
	1310	0					710	0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

H23

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H23

The numbers denote the sequence of the tests

man 9,7 k

-2-

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	mm		
ca.49 2a	750	16,0	without auxiliary spring	ca.22	200	6,0	730	0	Control rod travel mm 10	11
	780	12,0			100	19 - 21				
	820	5,0	with auxiliary spring	250	200	5,7-6,3	400	0	Control rod travel mm 10	11
	800	6,8-10,0			300	1,7-3,8				
	850	1,8-3,5			400	0 - 1				
	950	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	Rotational-speed limitat.		Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm 9
	rev/min	cm³/1000 strokes	Note: changed to ...) rev/min	rev/min			
engine D 2146 HM 1, ...HM 4 F, 1100 110,5-112,5	1120	... HMN 1 ... HMN 6 F 800 108,5-114,5 500 max. 104,5	PES 6 RQV 200-1100	A 95 AB 514 L	C 410 RS 2108 Y 6 mm RW **		
engine D 2146 HM 1, ...HM 3 F D 2156 HM 5 F, ..HMN 5 F			PES 6 RQV 200-1050	A 95 AB 514 L	C 410 RS 2108 .. 609 L		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1050 108,0-110,0 1070 800 106,0-110,0 200 6 mm RW **

engine D 2146 M 14, ...MN 11 PES 6 A 95 C 410 RS 2108 V
RQV 200-1100 AB 514 L, .. 609 L

1100 109,0-111,0 1120 700 102,5-105,5 200 6 mm RW **
500 max. 103,0

engine D 2356 HM 2, ---HMN 2 PES 6 A 95 C 410 RS 2108 W
RQV 200-1100 AB 514 L, ..609 L

1100 123,5-125,5 1120 800 120,5-123,5 200 6 mm RW **
500 max. 119,5

Increase by ± 0,5 cm³!

** To be specified
by customer

Section C) Settings for fuel-injection pump with fitted governor - for EP/RSV:
In accordance with engine performance and speed as per data from M A N !

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	Rotational-speed limitat.		Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm 9
	rev/min	cm³/1000 strokes	Note: changed to ...) rev/min	rev/min			

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HAN 5,2 c

Edition 9.64

En

PE 4 A 75 B 420 RS 87

RQV 250-600 A 78

supersedes 10.52
company: Hanomag
engine: D 55

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	9	3,0 - 3,4	0,3			
	12	6,1 - 6,4				
	15	8,5 - 9,3				
200	9	2,1 - 2,8				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	Sliding sleeve travel ① rev/min mm
1	2	3	②a	4	5	6	④	7	8	9	③	10 11
66+1,5	600	16 -18,4						10+1,5	100	7 - 7,6		
	620	9 -15							200	5 - 7,2		
	660	0 - 7							300	2,5-4,2		
	700	0							400	0 - 1,3		
									430	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel Control rod travel rev/min mm ⑤		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
600	93,0-95,0	600 - 620						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

J1
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② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 MAN 9,7 g

Edition 5.72

PES 6 A 95 C 412 RS 2108		RQ 200/1050 AB 553 L	En	supersedes	6.68
	..RS 2108Y	.. AB 647 L	(519)	company:	M A N
	..RS 2108W			engine:	D 2146 HM..
(D)	..RS 2108V	RQ 200/1100 AB 553L			D 2146 M..
	..RS 2108U	..AB 647L			D 2156 HM..
	..RS 2108(T)*	RQ 200/1100 AB 816DL			D 2156 MY..
					D 2356 HM..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,7 + 0,1

mm (from BDC)

*Start with "T" - change part no.
to ...281!

Port closing at prestroke

Rotations' red rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	9	8,4 - 9,4		9	7,5 - 8,0	
1000	6	4,0 - 5,0		6	3,2 - 4,2	
	15	16,6 - 17,8			- - -	
200	9	5,9 - 6,9		6	0,5 - 1,4	
.						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ ..

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
200/	1050 AB 553,	647	(519)								
600	15,7-16,3	600	16,0	1070	15,8-16,0	580	0	200	6,8-8,1	-	-
				1100	10,0-14,6			300	4,6-6,6		
				1140	2,0-10,0			400	1,3-3,8		
				1220	0			480	0		
At 1085-1100, governor must have regulated 1.3-1.7 mm from full load!											

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

1 mm less control
rod travel

200/1100 AB 553, 647

550	15,7-16,3	550	16,0	1120	15,8-16,0	560	0	100	6,8-8,1	-	-
				1160	7,6-13,4			250	4,6-6,6		
				1200	0 - 7,8			400	0 - 2,5		
				1260	0			460	0		

**

200/1100 AB 816D

600	15,7-16,3	600	16,0	1120	15,0-15,4	550	0	100	6,3-8,1	800	15,6-16,0
				1150	9,5-14,0			200	5,0-7,0		
				1200	0 - 8,0			300	3,0-5,0	950	15,4-15,6
				1260	0			450	0		

** At 1140-1155, governor must have regulated 1.3-1.7 mm from full load!

J2

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./.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes			rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3	4	5		6	7
*	D 2146 HM 1, .. HM 4 F		PES 6 A 95 C 410 RS 2108 Y				
	D 2156 HM 3, .. HM 6 F		RQ 200/1100 AB 553 L, ***	(519) **			
	.. HMN 1, .. HMN 8 F		RQ 200/1100 AB 647 L				
1100	110,5-112,5	1100	800	108,5-111,5	100	20 mm RW	
			500	max. 104,5	200	6 mm RW	
*	D 2146 HM 1, .. HM 3 F		PES 6 A 95 C 410 RS 2108				
	D 2156 HM5F, .. HMN 5 F		RQ 200/1050 AB 553 L, ***	(519) **			
			RQ 200/1050 AB 647 L				
1050	108,0-110,0	1050	800	106,0-110,0	100	20 mm RW	
			200			6 mm RW	
*	D 2146 M 14, .. MN 11		PES 6 A 95 C 410 RS 2108, ***				
			PES 6 A 95 C 410 RS 2108 V				
			RQ 200/1100 AB 553 L, ***	(519)**			
			RQ 200/1100 AB 647 L				
1100	109,0-111,0	1100	700	102,5-105,5	100	20 mm RW	
			500	max. 103,0	200	6 mm RW	
*	D 2356 HM 2, .. HMN 2		PES 6 A 95 C 410 RS 2108 W				
			RQ 200/1100 AB 553 L, ***	(519)**			
			RQ 200/1100 AB 647 L				
1100	123,5-125,5	1100	800	120,5-123,5	100	20 mm RW	
			500	max. 122,5	200	6 mm RW	
*	D 2156 HM 6		PES 6 A 95 C 410 RS 2108 U				
			RQ 200/1100 AB 647 L				
1100	107,0-109,0	1100	700	100,5-103,5	100	20 mm RW	
			500	max. 100,5	200	6 mm RW	
*	D 2156 MY, .. MXN		PES 6 A .. RS 2108 with RQ .. AB816DL				
1100	98,5 - 100,5	500	700	99,5 -102,5	100	20 mm RW	
			500	max. 98,0	200	6 mm RW	

Governor ...519 as ..553, however without starting fuel delivery **

When checking, expand values (columns 2 and 5) by ± 1.0 cm³!

* engine

*** or

En

J3

Testoil-ISO 4113

J3

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 5,1a
(5,1b)

Edition 5.72

En

3 PE (S) 4 A 70 B 6 C	410 RS 301, 424 D-RS1043,1117,1185 (V7051 = S117)	EP/RS 250/1400 AO A B 340D	supersedes company engine.	10.68 K H D 3 F 4 L 712 6 812
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All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "B" u. "C" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel "D" 1043, mm 2	Fuel delivery "C" 1043 cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4	12	5,6 - 6,0	
	6	1,2 - 2,3		9	3,0 - 3,8 - - -	
	18	10,9 - 11,9		9	1,8 - 2,6	
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		③ 3a		
Degree of deflection of control lever	rev/min	Control rod travel mm	① 1a	Degree of deflection of control lever	rev/min	Control rod travel mm	④ 4	Degree of deflection of control lever	rev/min	Control rod travel mm	③ 3	① 1	
1	2	3	② 2a	4	5	6	⑤ 5	7	8	9	⑥ 6	10	11
ca .72	1400	8,9					ca .45	250	5,9				
	1400	8,8-9,4						100	20,0-21,0	1380		0	
	1420	6,6-7,7						250	5,6-6,2	900	0,8-1,0		
	1440	4,6-5,7						350	3,5-4,5	500	0,8-1,0		
	1520	0,7-2,5						500	0 - 1,4	550	0 - 1,0		
	1600	0,3-1,0						550	0 - 1,0				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	⑥	Torque-control travel	
rev/min		② 2b	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	⑤ 5	
1	2	3	4	5	6	7	8	9
1380	41,8-43,8		1400	900 500	43,3-46,3 40,0-43,0			300

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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J4

J4

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 16,0 a
Edition 3.67

En

PE 12 A 75 B 520 RS 178

RQ 200/1150 A 152 D

supersedes 5.64
company: KHD

PE 12 A 85 B 520 RS 178

RQ 200/1150 A 257 D ./.

engine: F 12 L 614
F 12 L 714*
A 12 L 614**

Cam sequence and angular cam spacing.

1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 - 1

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC) 7,5 Ø

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 A 152 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel mm 11	Control rod travel mm 12	
1130	13,0-13,8	1130	13,4	1150 13,2-13,4	440	0	100	6,0-8,0	400	15,8-16,2	
				1160 10,0-13,4			200	3,2-5,8	600	15,3-15,6	
				1180 3,0-12,0			300	0 - 2	800	14,7-15,0	
				1200 0 - 9			340	0	1000	13,9-14,2	
				1250 0							

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes/mm 7	rev/min 6	cm³/1000 strokes/mm 7	
1130	70,0 - 72,0	600	600 1000	76,5 - 79,5 73,0 - 76,0	100	mind. 9,9			./. .

Checking values in brackets

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A. Fuel Injection Pump Settings

2,15 + 0,1

mm (from BDC)

8,5 Ø

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 A 257 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm					
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1100	13,7-14,5	1100	14,1	1150	13,6-14,1	420	0	100	6,0-8,1	400	15,5-16,0
				1170	7,2-13,2			200	3,6-5,8	600	14,9-15,4
				1190	0 - 10,0			300	0 - 1,5	800	14,1-14,5
				1220	0 - 4,8			320	0	900	14,1
				1240	0						

Torque-control travel
on flyweight assembly dimension a =

0,7 mm

Speed regulation: At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1130	79,0 - 82,0	500	1000 800 500	81,9 - 85,0 84,5 - 87,5 89,0 - 92,0

Checking values in brackets

**(2) Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

VDT-WPP 001/4 KHD 9,5 a(9,5b)

Edition 11.68

En

PE 6 A 75 B 320 RS 154 RQ 250/1150 A 307 D
RS 154 z*
RS 1035, z*

AA 307 D

supersedes 5.64
company: KHD
* 145 PS
engine: F 6 L 714
F 6 L 613

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Differer.ce cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,2			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoöl-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1050	14,7-15,3	1050	15	1150 1160 1180 1200 1250	14,8-15 11,4-15 4,2-12,6 0 - 9,2 0	440	0	200 250 300 340	7 - 8,1 4 - 6,6 0 - 3,2 0	400 600 800	15,7-16,3 15,4-15,8 15 - 15,4

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	6	cm ³ /1000 strokes/mm
1130	82,5 - 84,5	600	600 1000	83,5 - 86,5 81,5 - 84,5		
	68,0 - 70,0		600 1000	70,0 - 73,0 67,5 - 70,5		21 mm RW

Checking values in brackets

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J7

J7

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

VDT-WPP 001/4 KHD 5,3 u
Edition 3.84

En

PE 4 A 75 B 420 LS 153,23
1036

RQ 250/1150 A 199D,68D

supersedes 20,7.60

company: K H D

engine: F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,6-16,4	450	16	1150 1170 1190 1210 1260	13,4 13 -13,4 4 - 12 0 - 9 0	400	0	200 250	7,2-8,1 4,6-7,2 1 - 4 0	550 800 1000	15,8-16 14,8-15,2 13,6-14,1

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6	
1	2	3	4	5	6	7	7	6
1150	67,5 - 69,5		600	1000 600 400	70,0 - 73,0 76,0 - 79,0 75,0 - 79,0		100	mind. 9,9

Checking values in brackets

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 KHD 5,3 y 1
Edition 5.64

En

PE 4 A 75 B LS 153 EP/RSV 200-1150 A1 A 331 D
 A4 A 331 D*

RS 1036

supersedes 10,7.59
company KHD
engine F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RSV 200-1150 A 1 A 331 D

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.67	1150	16	ca.26	200	6	1130
	1200	11,4		100	19 - 21	700
2a	1250	5,8		200	5,7-6,3	500
	1200	10,2-12,2		300	4 - 5	300
	1240	4,8- 8,6		400	0,8-3,5	
	1300	1,1-3,8		550	0 - 1	
	1400	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1130	66,5-68,5	1160-1180	400 600 1000	72,0 - 76,0 73,5 - 76,5 66,0 - 69,0	100	mind. 9,9	200	6	

Checking values in brackets

* 1 mm less control rod travel than col 2

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J9

The numbers denote the sequence of the tests

KHD 5,3 y 1

B. Governor Settings

200-1150 A 4 331 D*

1A

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca.72	1150 1180 1220	16 12,2 6				ca,25	200 100 200 300 400 550	6 19 - 21 5,7-6,3 3,8-4,9 0,4-3,3 0 - 1	1130 700 500 300	0 0,3-0,5 1 - 1,2 1,2-1,4
(5)	1180 1250 1300 1350	11 - 13 2,2-4,3 0,3-1,8 0 - 1	without auxiliary spring with auxiliary spring							

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a) Fuel delivery characteristics		Starting fuel delivery		⑤a) Idle stop		
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure (g.p.)
increasing

Pump/governor	Setting (g.p.)	bar	Measurement (g.p.)	bar	Control rod travel-diminution difference mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

J10

J10

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,7 c
Edition 7.71

En

PES 6 A 95 C 412 RS 2071	RQ 200/1050 AA452D,488D		supersedes	7.64
RS 2128,Z	AA488D,	(1)	company:	M A N
RS 2128	RQ 200/1100 AB647L	(2)	engine:	D 2146 MT
RS 2128	RQ 200/1100 AB774DL	(3)		D 2156 MT

D 2156 MTN

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	8,4 - 9,0	0,5			
1000	6	4,0 - 5,0				
	15	16,3 - 17,8				
200	6	1,3 - 2,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

AA 452 D. AA 488 D (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min 1	Control rod travel mm 2	Setting point Control rod travel rev/min 3	Control rod travel mm 4	Test specifications Control rod travel rev/min 5	Setting point Control rod travel rev/min 6	Setting point Control rod travel rev/min 7	Control rod travel mm 8	Test specifications Control rod travel rev/min 9	Control rod travel mm 10	Control rod travel rev/min 11	Control rod travel mm 12
1000	14,2-15,0	1000	14,6	1050 14,3-14,6 1060 12,8-14,6 1100 5,6-11,3 1140 0 - 6,5 1190 0	550	0	450 350 250 150 100	0 1,6-4,0 4,2-6,4 6,0-7,9 6,5-8,1	600 700 800 900 980	16,0 15,6-15,9 15,2-15,5 14,7-15,0 14,6	

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes/mm 7
"Z" 1050	112,5 - 114,5	700	700 500	117,0 - 120,0 max. 122,5	200	6 mm RW
1050	121,5 - 123,5	500	700 500	120,0 - 123,0 max. 119,0		. / .

Checking values in brackets

J11

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J11

B. Governor Settings

RQ .. AB 647 L (2)

MAN 9,7 c

-2-
2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	mm	Setting point		Test specifications		Control rod travel rev/min	mm	Setting point		Control rod travel rev/min	mm
		Control rod travel rev/min	mm	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
550	15,6-16,4	550	16,0	1120	15,8-16,0	560	0	100	6,8-8,1	-	-
			1160		7,6-13,4			200	5,6-7,4		
			1200		0 - 7,8			300	3,5-5,5		
			1260		0			400	0 - 2,5		
								460	0		

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min		rev/min		rev/min		rev/min	
1	2	3	4	5	6	6	7
1100	127,0-130,0	1100	800 500	124,5-128,5 max. 123,5		100	mind. 18 mm RW

Checking values in brackets

B. Governor Settings

RQ .. AB 774 DL (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	mm	Setting point		Test specifications		Control rod travel rev/min	mm	Setting point		Control rod travel rev/min	mm
		Control rod travel rev/min	mm	Control rod travel mm	rev/min			Control rod travel mm	rev/min		
600	15,7-16,3	600	16,0	1120	15,0-15,4	540	0	100	5,9-7,8	-	-
			1150		9,5-14,0			200	4,6-6,8	1050	15,6-15,9
			1200		0 - 8,1			300	2,4-4,7	1100	15,4-15,6
			1260		0			440	0		

Torque-control travel
on flyweight assembly dimension a = 0,15 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min		rev/min		rev/min		rev/min	
1	2	3	4	5	6	6	7
1100	127,0-130,0	500	800 500	127,5 - 131,5 max. 127,5		100 200	mind. 18 mm RW 6 mm RW

En Checking values in brackets

**② Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 HAN 3,3 a
Edition 1.65

En

PE 4 A 70 C 412 RS 1090 RQ 250/1425 AA 490 D
RS 1090 y

supersedes 10,64
company: Hanomag
engine: D 351

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
	200	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1		Full-load speed regulation Setting point Control rod travel rev/min 3				Idle speed regulation Setting point Control rod travel rev/min 7				Torque control Control rod travel rev/min 11	
		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6		Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10		Control rod travel mm 12	
1350	14,4-15,2	1350	14,8	1425 1440 1460 1480 1500 1550	14,6-14,8 10,9-14,8 6,2-13 0,7-10 0-7,2 0	500	0	100 150 200 300 350 400	6,3-8,1 5,8-7,7 4,9-6,9 2,2-4,5 0-2,7 0	1000 1100 1200 1300	15,9-16 15,5-15,8 15,1-15,5 14,8-15

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed Control rod travel rev/min 6		Control rod travel cm³/1000 strokes/mm 7	
rev/min 1	cm³/-1000 strokes 2			rev/min 4	cm³/-1000 strokes 5		rev/min 6	cm³/1000 strokes/mm 7	
"γ"				1000 500	54,5 - 57,5 50,0 - 53,0		*	Delivery at n 1000 must be min. 1.5 cm³/1000 strokes higher than at n 1400	
1400	53,0 - 55,0			1000 700 500	56,5 - 59,5 57,0 - 60,0 51,5 - 55,5				

Checking values in brackets

J13

J13

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**② Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 KHD 10,6 d

Edition 3.69

En

PE 8 A 75 B 320 RS77, 1099
RS1099
RS 77

RQ 200/1150 A151D (1)
RQ 250/1150 AB520D (2)
RQ 200/ 900 A 65 D (3)

supersedes 10,6c (5.64)
company: 10,6d (5.64)
engine: K H D
F 8 L 614
(170 PS - 1)
(155 PS - 2)
(A 8 - 120 PS - 3)

Cam sequence and angular cam spacing.

1 - 8 - 4 - 5 - 7 - 3 - 6 - 2 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 A 151 D (1)

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	12
1	2	3	4	5	6	7	8	9	10	11	12
1100	13,4-14,2	1100	13,8	1150 1160 1180 1200 1250	13,4-13,8 10 - 13,8 4 - 12,2 0 - 9,8 0	440	0	100 200 300 340	6 - 8 3 - 3,5 0 - 2 0	400 600 800 1000	15,8-16,2 15,3-15,6 14,6-14,9 13,9-14,2

Torque-control travel

on flyweight assembly dimension a = 0,7 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		6
			rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6	
1	2	3	4	5	6	7	cm³/1000 strokes/mm	7	Control rod travel
1130	67,0 - 69,0		600	600 1000	73,5 - 76,5 69,5 - 72,5		100	mind. 9,9	

Checking values in brackets

Testoil-ISO 4113

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B. Governor Settings

RQ 250/1150 AB520D (2)

KHD 10,6 d

-2- 2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Test specifications		Control rod travel mm	Control rod travel mm	
		rev/min	Control rod travel mm	rev/min	Control rod travel mm		rev/min	Control rod travel mm			
1100	13,5-14,3	1100	13,9	1150	13,7-13,9	430	0	330	0	400	15,8-16,2
				1160	11 -13,9			300	0 - 1,8	600	15,3-15,6
				1180	4,5-12			200	3,5-6	800	14,7-15
				1220	0 - 5,4			100	6 -8,1	1000	13,9-14,2
				1250	0						

Torque-control travel
on flyweight assembly dimension a =

0,65
mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1130	65,0 - 67,0		600	600	71,0 - 74,0		

Checking values in brackets

B. Governor Settings

RQ 200/900 A65D (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Test specifications		Control rod travel mm	Control rod travel mm	
		rev/min	Control rod travel mm	rev/min	Control rod travel mm		rev/min	Control rod travel mm			
875	13,7-14,5	875	14,1	900	13,9-14,1			100	7,4-8,2	450	15,7-16,4
				920	7,4-13,8	450		200	4,4-7,2	600	15,2-15,6
				960	0 - 6,4			300	0 - 3	800	14,3-14,7
				990	0			350	0		

Torque-control travel
on flyweight assembly dimension a =

0,6
mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
850	71,0 - 73,0		400	400	72,0 - 75,0	100	mind. 9,9
				600	72,0 - 75,0		

En Checking values in brackets

Testoil-ISO 4113

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 16,0 g

Edition

En

PE 12 A 75 C 520 RS 1100 RQV 200-750 AA 478 R
 RQV 300-750 AA 478 R
 RQV 250-1010AA 527 DR
 RQV 200-1150AA 528 DR

supersedes

-
K H D

company:

engine:

F/A 12 L 614
L 714

Cam sequence and angular cam spacing.

1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 - 1

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV ...-... AA 478 R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel	①a	Degree of deflection of control lever	rev/min	Control rod travel	④	Degree of deflection of control lever	rev/min	Control rod travel	③	①	
1	2	3	2e	4	5	6	4	7	8	9	3	10	11
66+1,5	750	15,0-18,0		-	-	-		10+1,5	100	6,3-8,0		-	-
	760	13,0-17,0							200	4,2-6,2			
	800	6,4-12,4							300	2,7-3,8			
	840	0 - 7,2							400	1,2-2,6			
	890	0							500	0			
66+1,5	750	15,0-18,0		-	-	-		10+1,5	250	7,2-8,0			
	760	13,0-16,8							350	3,0-5,2			
	800	6,0-12,0							450	1,3-2,5			
	840	0 - 6,0							500	0 - 1,0			
	880	0							540	0			

Checking values in brackets

* 1 mm less control rod travel than col. 2

J16

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J16

B. Governor Settings

RQV 250-1050 AA 527 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	Sliding sleeve travel ①	
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66+1,5	1050	15,0-17,8	-	-	-	-	10+1,5	200	5,8-8,0	1050	0		
	1100	9,2-14,0						320	3,0-3,8	800	0,6-0,8		
	1150	3,0- 9,6						400	2,4-3,8	600	1,0-1,2		
	1200	0 - 4,6						550	0,9-2,3	300	1,1-1,3		
	1260	0						700	0				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	rev/min	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1050	71,0-73,0		1070		800	69,0-72,0	100	20mmRW	1000	
					500	75,0-78,0				Motor 714
					(1050)	76,5-81,5				
750	77,0 - 79,0		760							
Measurement with starting lever pulled is in parentheses!										
Re-check on engine!										

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV 200-1150 AA 528 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	Sliding sleeve travel ①	
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66+1,5	1150	15,0-18,0	-	-	-	-	10+1,5	100	7,0-7,6	1150	0		
	1200	9,6-14,0						200	4,3-6,6	900	0,6-0,8		
	1240	5,5-10,6						300	2,6-3,4	700	1,2-1,4		
	1280	1,6-7,6						500	1,2-2,6	400	1,4-1,6		
	1370	0						730	0				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②			Rotational-speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	rev/min	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1150	66,0 - 68,0		1170		600	83,0 - 76,0			engine 614	
					400	71,5 - 75,7				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 SCL 3,2 a

Edition 8.89

En

PES 3 A 65 C 410 RS 1104	(1)	EP/RSV	250-1000	A1 B 397 D	supersedes	SCHL 3,2a(11.65)
RS 1060./.	(1)		250-1000		company	Schlüter
RS 1104Z	(2)		250- 900		engine	SD 105 W3 (42 PS - 1)
RS 1104Y	(3)		250- 900			SD 100 W3 (32 PS - 2)
PES 3 A 70 C 410 RS 1104Z	(4)		250-1000			SD 100 W3 (35 PS - 3-4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

SD 105 W3 (45 PS - 55)

A. Fuel Injection Pump Settings

Port closing at prestroke RS 1104Y (5) 250-1000
1,9 + 0,1 mm (from BDC)

.S 1104

Rotational speed rev/min	Control rod travel mm	Fuel delivery 6,5 Ø cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery 7 Ø cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3		6,5 - 7,0	
	6	1,4 - 2,1			1,2 - 2,3	
	18	9,7 - 10,6			10,9 - 11,9	
200	6	0,8 - 1,6			0,6 - 1,5	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		Control rod travel mm	rev/min	Control rod travel mm	rev/min
ca. 51	1000	12	without auxiliary spring	ca. 22	250	5,5	980	0	0,2-0,4	0,5-0,7
	1020	9,5			100	19 - 21	800	0,2-0,4		
	1050	5,4			250	5,2-5,8	700	0,5-0,7		
2a	1020	9 - 10,2	with auxiliary spring		350	2,8-4,1	400	0,5-0,7		
	1050	4,4- 6,6			400	0,6-3,2	520	0 - 1		
	1100	1,2- 3,2								
	1200	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5 Idle stop	4a Control rod travel	
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9 mm
980	50,0 - 52,0	1020	500 400	53,0 - 56,0 50,5 - 53,5	100	20 mm RW	250	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

J18

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J18

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings... S 1060

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	3,3 - 3,7	0,3			
	6	1,0 - 1,8				
	12	5,1 - 6,1				
	200	6 21 0,4 - 1,3 7,6 - 8,9				

Adjust the fuel delivery from each outlet according to the values in []

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
(2) 880	44,0 - 46,0	910	500 400	48,0 - 51,0 45,5 - 48,5	100	20 mm RW	250	5,5
(3) 880	47,5 - 49,5	910	500 400	53,0 - 56,0 51,0 - 54,0	100	20 mm RW	250	5,5
(4) 980	42,0 - 44,0	1020	700 500	45,5 - 48,5 44,5 - 47,5	100	20 mm RW	250	5,5
(5) 980	54,0 - 56,0	1020	500 400	58,0 - 61,0 55,5 - 58,5	100	20 mm RW	250	5,5

En

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

VDT-WPP 001/4 MAN 9,7 i

Edition 5.72

En

PES 6 A 90 C 412	LS2059	RQ 200/1050	AA456D	(1)	supersedes	10.68
421	LS2140, Z	200/1050	AA456D	(1, 2)	company:	M A N
	LS2140	200/1100	AA548D	(3)	engine:	D 2146 HM1U(1-2)
	LS2140	200/1000	AB703D	(4)		HM2U (3)
(D)	LS2140	200/1050	AB813D	(5)		D 2356 HM5U (4)
	LS2140	200/1100	AB456D	(6)		D 2156 HM6U (5)
PES 6 A 95 C 420	LS2140	200/1100	AB764	(7)		D 2356 HM51U(6-7)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5+0,1(9 Ø) mm (from BDC) 1,7 + 0,1 (9,5 Ø)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" 9Ø cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery "D" 9 Ø cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm "C" 9,5 Ø
1	2	3	4	2	3	6
	9	5,9 - 6,4		9	5,1 - 5,5	9 8,4-9,0
1000	6	2,3 - 3,1		6	1,6 - 2,6	6 4,0-5,0
	15	14,4 - 15,5			- - -	15 16,3-17,8
200	9	3,7 - 4,6		9	1,9 - 2,9	6 1,4-2,6

Adjust the fuel delivery from each outlet according to the values in

RQ ..

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm					
Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min
200/1050 AA452D, 456D	(1-2)										
1000 14,2-15	1000 14,6	1070	14,3-14,6	570	0	100	7,0-8,1	450	16,0-16,6		
		1100	9,0-13,2			250	4,6-6,9	800	15,2-15,5		
		1140	0 - 8,6			350	2,0-4,5	950	14,6-14,8		
		1200	0			470	0				
200/1100 AA548D	(3)										

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

1050 14,2-14,8	1050 14,5	1120 14,2-14,5	560 0	100 6,1-8,1	650 15,8-16,0
		1150 9,2-13,4		250 4,1-6,1	
		1200 0 - 7,6		350 1,6-3,9	800 15,2-15,6
		1260 0		460 0	950 14,5-14,9

200/1000 AB703D (4)

Torque-control travel
on flyweight assembly dimension = 0,2 mm

550 15,7-16,3	550 16,0	1020 14,9-15,3	500 0	100 6,2-8,1	600 15,9-16,0
		1060 7,0-12,4		200 4,6-6,4	
		1100 0 - 7,2		300 1,8-4,1	750 15,4-15,6
		1150 0		400 0	

200/1050 3B813D (5)

600 15,7-16,3	600 16,0	1070 15,0-15,3	560 0	100 6,9-8,1	700 15,9-16,0
		1100 9,0-13,8		200 5,7-7,8	
		1150 0 - 8,0		300 3,6-5,7	900 15,3-15,6
		1200 0		460 0	

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J20

B. Governor Settings

RQ..

MAN 9,7i

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Setting point Control rod travel rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel mm			
200	1100 AB456D	(6)				550	0				
600	15,7-16,3	600	16,0	1120	14,2-14,5		100	6,6-8,1	650	15,8-16,0	
				1150	7,0-12,8		200	5,4-7,4			
				1180	0 - 8,9		300	3,2-5,3	800	15,2-15,5	
				1230	0		450	0	950	14,5-14,8	

Torque-control travel 0,4 mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes / mm	
1	2	3	4	5	6	7	8
D 2146	HM1U Pe ..S2059 **		456D	(1)			
-	190 - Pe ..S2140 **		456D				
1030	109,5-111,5	700	700	110,5 - 114,5	100	mind. 20 mm RW	
D 2146	HM1U - Pe ..S2140Z **		456D	(2) -170-			
1030	96,0- 98,0	600	600	98,5 - 101,5	100	mind. 20 mm RW	
D 2146	HM2U - Pe ..S2140 **		200/1100 AA548D (3)				
1080	94,5- 97,5	800	800	100,0 - 104,0			

Checking values in brackets

** with governors

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min	Control rod travel mm	Setting point		Test specifications		Setting point Control rod travel rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	Control rod travel mm			
200	1100 AB764	(7)				560	0				
550	15,7-16,3	550	16,0	1120	15,8-16,0		100	6,8-8,1	-	-	-
				1160	7,6-13,4		200	5,6-7,4			
				1200	0 - 7,8		300	3,5-5,5			
				1260	0		460	0			

Torque-control travel mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes / mm	
1	2	3	4	5	6	7	8
D 2356	HM5U Pe ..S2140 **		200/1000 AB703D (4)				
1000	123,0-126,0	500	800	118,0-122,0	200	6 mm RW	
			500	max. 125,5			
D 2156	HM6U Pe ..S2140 **		200/1050 AB813D (5)				
1050	109,0-111,0				100	mind. 18 mm RW	
					200	6 mm RW	
D 2356	HM51U Pe ..S2140 **		200/1100 AB456D				
1100	125,0-128,0	500	800	124,5-128,5	200	6 mm RW	
			500	max. 122,5			

Checking values in brackets

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 STE 6,0 a

Edition 6.69

En

PE 6 A 80 C 412 RS 2060 RQ 250/1400 AA 322 D
 RS 415

supersedes 3.65
 company: Steyr-Daimler-Puch
 engine: WD 609 b

Note: pay attention to "without" or
 "with" cap in full-throttle setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
	200	2,9 - 3,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Setting point Control rod travel rev/min 3	Full-load speed regulation				Setting point Control rod travel rev/min 7	Idle speed regulation				Torque control Control rod travel rev/min 11
		Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm		Control rod travel mm	Test specifications Control rod travel mm	rev/min		
1300	14,4-15	1300	14,7	1400	14,4-14,7	510	0	100	6,2-8,1	450	16 - 16,3
				1420	11 - 14,7			200	4,6-6,8	700	15,2-15,6
				1450	6 - 12			250	3,6-5,8	850	14,7-15
				1500	0 - 7,6			300	2 - 4,4		
				1580	0			350	0 - 2,7		
								410	0		

Torque-control travel
on flyweight assembly dimension a =

0,4 mm +0,05

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	Control rod stop	Fuel delivery characteristics			Starting fuel delivery Idle speed	Control rod travel mm
		rev/min	cm ³ /1000 strokes	rev/min		
without	500	1000	51,7 - 54,7	100	8,4 - 8,9	
		500	52,2 - 55,2			

Checking values in brackets

J22

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J22

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 STE 6,0 b
Edition 3.65PE 6 A 80 C 412 RS 2060 RQ 250/1500 AA 322 D
RS 415Note: pay attention to "without" or
"with" cap in full-throttle settingsupersedes 6.63
company Steyr-Daimler-Puch
engine WD 609 d

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,8				

Adjust the fuel delivery from each outlet according to the values in

Testoit-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1450	14,4-15	1450	14,7	1500	14,4-14,7	500	0	100	6 - 8	400	16 - 16,6
				1540	11 - 14			200	5 - 7	700	15,3-15,7
				1580	6,6-11,6			300	2 - 4	850	14,7-15
				1640	0 - 8			400	0		
				1740	0						

Torque-control travel
on flyweight assembly dimension a = 0,4 mm +0,05

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	4	rev/min	
1	2	3	4	5	6	7	8	9	10
without	1480	68,0 - 70,0		500	1000	56,5 - 59,5		100	8,4 - 8,9
with	1480	62,5 - 65,5			500	55,5 - 58,5			

Checking values in brackets

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(3) Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,7 i 3

Edition 2.64

En

PES 4 A 50 C 410 RS 1010

EP/M 60 A 138 D

supersedes
company
engine

1.63
Daimler-Benz
OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke $1,7 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Torque control travel mm	Leakage Vacuum pressure drop mm water col	Time at least s	Control-rod travel limitation breakaway* mm w.c.	Control rod travel mm	Control rod travel test mm w.c.	Control rod travel mm	Auxiliary spring auxiliary cam** mm w.c.	Control rod travel mm	Torque control mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1,0+0,1	500-480	10	300	12,3			300	12,3	30	13,3-13,4
							500	12,3	75	12,9-13,3
							570	8,7-11,8	125	12,3-12,6
							750	0 - 3,7		

control rod travel test (cols 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics				idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes	
rev/min	Vacuum mm wat. col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	8	
1	2	3	4	5	6	7				
1000	300	28,2-29,2	500 700	50 125	30,2 - 33,2 28,2 - 31,2					

Checking values in brackets

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Test Specifications

Fuel Injection Pumps and Governors

En

PES 4 A 50 C 410 RS 1010

EP/M 60 A 152 DL

supersedes
company
engine

Daimler-Benz
OM 636-914

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,7 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Torque control travel mm	Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control		
1	2	3	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1,1+0,1 500-480	10	300	12,5					405	12,5	50	13,6-13,7	
* These values are to be precisely set by inserting shims WS 22 S 18-19 X beneath governor spring								420	11,4-12,5	70	13,3-13,7	
control rod travel test (cols. 4-11) = rotational speed 500 rev/min adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**								500	6,0- 8,5	125	12,5-12,9	
								600	1,0- 4,5			

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics					idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes	
rev/min	Vacuum mm wat col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	7	Vacuum mm wat col	8	7	Vacuum mm wat col	8
1000	300	29,2 - 31,2	750 500	125 50	28,7 - 31,7 31,7 - 34,7						

Checking values in brackets

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,1 i

Edition 7.70

En

PE 6 A 75 B 412 RS 1007

RQ 250/1300 A 395 D
200/1250 A 395 D
/1300 A 395 D

See page 2!

supersedes 11.64
company: Henschel
engine: 522 DP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,3			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

RQ 250/1300 A 395 D

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point Control rod travel rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point Control rod travel rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14-14,8	1250	14,4	1300 1320 1340 1360 1420	14 - 14,4 9,6-14 3,6-11,2 0 - 8,4 0	510	0	100 200 250 350 410	6,2-8,1 4,8 - 7 3,5 - 6 0 - 2,8 0	400 600 800 1100	15,8-16,9 15,4-15,9 15 - 15,5 14,4-14,7

Torque-control travel 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel mm
rev/min	cm³/-1000 strokes	3	4	5	6	7
1000	57,0-59,0	500	500 700 1280	57,0 - 61,0 59,0 - 62,0 mind. 56,5		./.

Checking values in brackets

Testoil-ISO 4113

K2

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K2

B. Governor Settings

RQ 200/1250 A 395 D

HEN 6,1 i

-2-

(2)

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation						Torque control	
Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Test specifications		Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	
		rev/min	mm			rev/min	mm								
1200	14-14,8	1200	14,4	1250	14,2-14,4	430	0	100	6,8-8,2	300	15,9-21				
				1260	10 - 14,4			200	4,1-6,8	400	15,8-16,2				
				1300	0 - 9			300	0 - 2	800	15,1-15,5				
				1350	0			330	0	1000	14,4-14,8				

Torque-control travel
on flyweight assembly dimension a =

0,5 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	Control rod travel
1	2	3	4	5	6	6	7	6	12

Checking values in brackets

B. Governor Settings

RQ 200/1300 A 395 D

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation						Torque control	
Setting point	Control rod travel	Test specifications		Setting point	Control rod travel	Test specifications		Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	
		rev/min	mm			rev/min	mm								
1250	14,2-15	1250	14,6	1300	14,4-14,6	440	0	50	7 - 8	300	16 - 21				
				1320	9 - 1,4			150	5 - 7	500	15,8-16,2				
				1360	0 - 8,7			250	1 - 4	900	14,8-15,2				
				1410	0			340	0	1100	14,6-14,7				

Torque-control travel
on flyweight assembly dimension a =

0,5 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	rev/min	Control rod travel
1	2	3	4	5	6	6	7	6	12

Checking values in brackets

K3

k3

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 DAI 5,1m
Edition 3.64

En

PES 6 A 70 C 410 RS 1078 EP/RSV 250-1300 A 1 B 364 D

supersedes 1.63
company Daimler-Benz
engine OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,9 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in **1**

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control-lever deflection in degrees	Lower rated speed rev/min	Control rod travel mm	3 Torque control rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10		
ca.72	1300	16	without auxiliary spring	ca.26	250	6	1280	0	1000 0,5-0,7		
	1340	11,6			100	19 - 21					
2a	1380	5,8	with auxiliary spring		250	5,7-6,3	400	0,5-0,7			
	1350	9 - 11,5			400	2 - 4					
2a	1380	4,4 - 7,7			500	0 - 2	600	0 - 1			
	1420	1,6 - 4,2			600	0 - 1					
	1500	0 - 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note changed to rev/min	3a Fuel delivery characteristics	Starting fuel delivery Idle	5 Idle stop Control rod travel mm
rev/min	2	4	6	7
1280	50,5-52,5	1310-1330	900 500	52,5 - 55,5 45,5 - 48,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

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K4

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 HAN 2,8b2
Edition 12.66

En

PE 4 A 60 C 310 LS 1088

EP/RSV 250-1000 A1 B225DL
EP/RSV 250-1300 A2 B229DL
EP/RSV 300-600-1500A2B128D

supersedes:
company
engine

Hanomag
D 28 CE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed		4	Lower rated speed	
Degree of deflection of control lever	Control rod travel mm		Control rod travel mm rev/min		Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8
ca .63	1000	16,0	without auxiliary spring	ca .30	250	6,5	980 0
	1070	11,4			100	19 - 21	900 0,5-0,7
	1140	5,1			250	6,2-6,8	800 1,3-1,5
	1100	7,2-10,0	with auxiliary spring		400	2,8-4,6	500 1,3-1,5
	1180	1,4- 4,4			600	0 - 1	
	1300	0 - 1					
2a							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop	6	Rotational-speed limitat	3a	Fuel delivery characteristics	Starting fuel delivery idle	5	4a	Idle stop
Test oil temp 40°C (104°F)	rev/min cm³/1000 strokes	Note changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
980	38,0 - 40,0	1020	800 500	45,7 - 48,7 45,0 - 48,0					

Checking values in brackets

* 1 mm less control rod travel than col 2

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K5

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The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 250-1300 A2 B229DL

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
ca.52	1300	16,0	without auxiliary spring	ca.20	250	6,5	1280	0	1 mm less control rod travel than col. 2	
	1360	11,8			150	19 - 21	1100	0,3-0,5		
	1420	6,8			250	6,2-6,8	900	0,6-0,8		
	1400	6,8-9,6	with auxiliary spring	700	500	1,3-4,0	500	1,0-1,2		
	1500	1,6-4,0			700	0 - 1	500	1,0-1,2		
	1650	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	Rotational-speed limitat.		Fuel delivery characteristics		Starting fuel delivery Idle	5 rev/min	4a Idle stop		
	rev/min	cm³/1000 strokes	Note: changed to ...)	rev/min				rev/min	Control rod travel mm
1280	40,5 - 42,5		1320	800 500	44,0-47,0 44,0-47,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 300-600-1500 A2 B128D

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
ca.61	1500	16,0	without auxiliary spring	ca.20	300	6,0	1200	0	1 mm less control rod travel than col. 2	
	1560	10,4			150	19 - 21	1000	0,2-0,4		
	1620	6,1			300	5,7-6,3	800	0,6-0,8		
	1580	8,1-10,4	with auxiliary spring	700	400	4,2-5,0	600	0,9-1,1		
	1640	3,5- 6,0			500	1,7-3,7	400	1,1-1,3		
	1700	0,6- 3,3			700	0 - 1				
	1800	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	Rotational-speed limitat.		Fuel delivery characteristics		Starting fuel delivery Idle	5 rev/min	4a Idle stop		
	rev/min	cm³/1000 strokes	Note: changed to ...)	rev/min				rev/min	Control rod travel mm
1480	43,2 - 45,2		1520	1150 800 500	43,0 - 46,0 45,0 - 48,0 45,5 - 48,5			Set intermediate speed stop 600 min⁻¹	

Checking values in brackets

* 1 mm less control rod travel than col. 2

K6

En

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 HAN 3,3 b

Edition 11.65

En

PE 4 A 70C412 RS 1090
RS 1090 Y
EP/RSV 250-600-1425 A2B 181 DL
EP/RSV 300-600-1425 A2B 181 DL

supersedes 10.64
company Hanomag
engine D 351
D 351 ML
D 351 MLA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9 + 0,1
Port closing at prestroke
2,5 + 0,1 mm (from BDC)

...S 1090

...S 1090 Y

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-600-1425 A2B 181 DL

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 55	1425	16,0	without auxiliary spring	ca. 19	250	6	1400	0	1200 0,2-0,4	1000 0,6-0,8
	1480	11,6			100	19 - 21				
	1540	5,7			250	5,7-6,3				
②a	1500	8,4-11,0	with auxiliary spring		400	3,4-4,6	400	0,6-0,8		
	1550	4,0- 6,8			500	0,6-3,5				
	1600	2,0- 4,2			700	0 - 1				
	1750	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	⑤ cm³/1000 strokes	④a Idle stop Control rod travel mm
1	2	3	4	5	8
Pe...S 1090 with EP/RSV 250-600-1425 A2B 181 DL					
1400	52,5 - 54,5	1430-1440	1000 500	54,0 - 57,0 50,0 - 53,0	100 ca. 21mmRW Intermediate speed stop n = 600

Checking values in brackets

* 1 mm less control rod travel than col. 2

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The numbers denote the sequence of the tests

EP/RSV 300-600-1425 A2B 181 DL

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.55	1425	16,0	without auxiliary spring	ca.20	300	6	1400	0	0,3-0,5	0,6-0,8
	1480	11,6			150	19 - 21	1100	0,3-0,5		
	1540	5,9			300	5,7-6,3	900	0,6-0,8		
	1520	5,8-9,2	with auxiliary spring		500	1,8-3,8	400	0,6-0,8		
	1600	2,0-4,2			700	0 - 1,0				
	1750	0,3-1,0								
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery	5	4a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...)	rev/min	rev/min	Idle	rev/min	Control rod travel mm
	1	2	3	4	6	7	8
Pe	..S 1090 Y /	EP/RSV 250-600-1425 A2B 181 DL					
1400	55,0 - 57,0	1430-1440	1000	56,5 - 59,5	100	ca.21mmRW	**
			700	57,0 - 60,0			
			500	52,0 - 55,0			
1400	60,0 - 62,0	1430-1440	1000	64,0 - 67,0	100	ca.21mmRW	**
			500	58,0 - 61,5			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Pe ...S 1090 Y / EP/RSV 300-600-1425 A2B 181 DL

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
	2	3								
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery	5	4a Idle stop
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ...)	rev/min	rev/min	Idle	rev/min	Control rod travel mm
	1	2	3	4	6	7	8
Pe	...S 1090 /	EP/RSV 300-600-1425 A2B 181 DL					
1400	51,0 - 53,0	1430-1440	1000	55,0 - 58,0	100	ca.21mmRW	**
			500	51,0 - 54,0			

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 SCL 6,5a

Edition 1.68

En

PES 6 A70 C410 RS1104Y/RS1193	EP/RSV 250-950	A1B426DL (1)
PES 6 A70 C410 RS1104/RS1193X	EP/RSV 250-950	A1B426DL (2)
PES 6 A70 C410 RS1104Z/RS1193W	EP/RSV 250-950	A1B426DL (3)
PES 6 A70 C410 RS1193Z	EP/RSV 250-1000	A1B426DL (4)

supersedes	11.65
company	Schlüter
engine	SD 100 W6 (65 PS - 1)
	SD 105 W6 (80 PS - 2)
	SD 105 W6 (84 PS - 3)
	SD 110 W6 (95 PS - 4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0				
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min			Intermediate rated speed			4	Lower rated speed			3	Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
ca. 51	1000	12	without auxiliary spring	ca. 22	250	5,5	980	0	900	0	800	0,1-0,3	700	0,2-0,4	
	1030	8,4													
	1050	5,4													
	1030	7,5 - 9,4	with auxiliary spring		250	5,2-5,8	400	0,2-0,4	350	2,8-4,1	450	0 - 2,1	550	0 - 1	
	1060	3,8 - 5,4													
	1100	1,0 - 3,2													
	1200	0,3 - 1,0													

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
	rev/min cm³/1000 strokes		rev/min	4	cm³/1000 strokes	rev/min	7	8	9
	1 2		3		5	6			
930	39,0 - 41,0	960		700 500	43,5 - 46,5 42,5 - 45,5	100	20mmRW	250	5,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

K9
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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RC	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes			rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7
(2) 930	45,0-47,0		960	700 400	46,5-49,5 44,5-47,5	100	20 mm RW X
(3) 930	52,5-54,5		960	700 400	54,5-57,5 52,5-55,5	100	20 mm RW X
(4) 980	59,5-61,5		1020	700 500	61,5-64,5 62,0-65,0	100	20 mm RW X

X Idle stop : 250 U/min. 5,5 mm RW

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 MWM 2,1 a 1

Edition 11.65

En

PES 2 A 75 C 410/3 RS 1133 EP/RSV 450-900 A 2 B 410 DL

supersedes
company
engine

M W M
AKD - 2 K 412 Z/2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.36	900	16,0	without auxiliary spring	ca.20	450	6
	950	11,3			200	19 - 21
2a	1000	6,1	without auxiliary spring		450	5,7-6,3
	980	6,5-9,6			600	1,8-3,7
	1050	3,0-4,6	with auxiliary spring		800	0 - 1
	1200	0,3-1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
880	60,0-62,0	910-920	500	58,5 - 61,5				450	6

Checking values in brackets

* 1 mm less control rod travel than col 2

K11

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Test Specifications

Fuel Injection Pumps ①A

and Governors

40

VDT-WPP 001/4 MAN 2,1 i

Edition 4.64

En

PE 3 A 60 C 410 LS 1135

EP/RSV 250-1150 A1 B 156 D
B 177 D

supersedes
company
engine

Hanomag
D 21 CR
D 21 CK

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery ② cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3			8	9	10	11	
ca.65	1150	12	without auxiliary spring	ca.28	250	6	1130	0	
	1180	9,2			100	19 - 21	1000	0,5-0,7	
	1210	5,5			250	5,7-6,3	800	1,2-1,4	
2a	1200	5,5 - 8	with auxiliary spring		400	2 - 4	500	1,2-1,4	
	1250	2 - 4			600	0 - 1			
	1350	0 - 1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop rev/min	④a Idle stop Control rod travel mm
1	2	3	4	5	6
1130	40,7 - 42,7	1160-1180	800 500	46,0-49,0 46,5-49,5	

Checking values in brackets

* 1 mm less control rod travel than col 2

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K12

K12

Test Specifications

Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 IHC 2,2 g(2,2 h)
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-900 A 4/18
LS 105 Z
LS 105 Y

supersedes 1.63
company I H C
engine DD 132
DD 132 S
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm rev/min	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca.51	900	16	without auxiliary spring	ca.21	250	5,5
	940	10			100	19 - 21
	970	5			250	5,2-5,8
	940	8 - 12			300	3 - 4,5
	980	2,4- 6	with auxiliary spring		350	0 - 2,6
	1000	1 - 3			450	0 - 1
	1100	0 - 1				
Z						
Y						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
750	30,0-32,0	910							
750	42,5-44,5	910							
750	34,5-36,5	910							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 IHC 1,8 h
Edition 12.64

En									
PES 3 A 60 D 320/3 LS 101Y	EP/RSV	250-750	A4	A	146	D	supersedes	10.61	
LS 101 X		-900	A4	A	146	D	company	I H C	
LS 101 W		-950	A4	A	146	D	engine	DU 99 D	
		-1000	A4	A	146	D		DD 99	
		-1400	A5	A	151	D		DU 111 D	
								DD 111	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,7 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 A 146 D

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed rev/min		③ Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	7	8	9	Control rod travel mm
ca.45	750	16	without auxiliary spring	ca.22	250	5,5	780 0
	800	9,2			100	19 - 21	600 0,1-0,3
	825	5			250	5,2-5,8	300 0,3-0,5
	800	7,4-10,2	with auxiliary spring		350	2,6-4	
	850	2,8- 4,5			400	0,6-3	
	950	0 - 1			500	0 - 1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)	⑥ Rotational-speed limitat Note changed to) rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	⑤ Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
X 730	32,0-36,0	760-770	500	33,0-36,0
W 730	37,0-39,0	760-770	500	37,5-40,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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1-94

The numbers denote the sequence of the tests

IHC 1,8 h

-2-

B. Governor Settings

EP/RSV 250-900 A 4 A 146 D

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed Control rod travel mm Control rod travel mm rev/min 2 3			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel rev/min mm 10 11		
ca.51	900 950 970	16 9 4,6	without auxiliary spring	ca.21	250 100 250 350 400 520	5,5 19 - 21 5,2-5,7 2,6-4 0,6-3 0 - 1	880 700 300	0 0,3-0,5 0,7-0,9			
(2a)	950 1000 1100	7 - 10 1,6-3,8 0 - 1	with auxiliary spring								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics			Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9	
X 880	32,0-34,0	910-920	500	33,0-36,0					
W 880	36,5-38,5	910-920	500	37,5-40,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-950 A 4 A 146 D

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed Control rod travel mm Control rod travel mm rev/min 2 3			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel rev/min mm 10 11		
ca.55	950 1000 1020	16 9 5,5	without auxiliary spring	ca.22	250 100 250 350 400 520	5,5 19 - 21 5,2-5,8 2,6-4 0,6-3 0 - 1	930 700 300	0 0,3-0,5 0,7-0,9			
(2a)	1000 1050 1150	7 - 10,5 2 - 4 0 - 1	with auxiliary spring								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)			6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics			Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9	
Y 930	35,5 - 37,5	960 - 970	500	38,0 - 41,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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The numbers denote the sequence of the tests

EP/RSV 250-1000 A 4 A 146 D

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control Control rod travel mm 10
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	
ca .58 (2a)	1000	16	without auxiliary spring	ca.22	250	5,5	980	0	
	1050	8,8			100	19 - 21	700	0,4-0,6	
	1070	5			250	5,2-5,8	350	0,7-0,9	
	1050	7 - 10	with auxiliary spring		350	2,6 - 4	400	0,8 - 3	
	1100	2 - 4			520	0 - 1			
	1200	0 - 1							

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8		
X 980	31,5-33,5	1010-1030	500	33,0-36,0				
Y 980	35,5-37,5	1010-1030	500	38,0-41,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-1400 A 5 A 151 D

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control Control rod travel mm 10
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	
ca .62 (2a)	1400	16	without auxiliary spring	ca.20	250	5,5	1380	0	
	1480	9			100	19 - 21	800	0	
	1520	4,6			250	5,2-5,7	500	0,3-0,5	
	1480	7,5 - 10	with auxiliary spring		400	2,6-4			
	1550	2,5-4,5			500	0 - 2,8			
	1600	0,5-2,8			650	0 - 1			
	1700	0 - 1							

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8		
Y 1380	36,0 - 38,0	1410-1430	500	34,0 - 37,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

K16

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② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 7,5 b

Edition 3.69

En

PE 6 A 85 C 410 LS 2211	RQ 250/1300 AB 575 DL	(1)	supersedes 9.67
S 2211	RQV 250-1300 AB 612 DL	(2)	company: K H D
S 2211	RQV 250-1300 AB 666 DL	(3)	engine: F6 L312
S 2211	EP/RSV 300-1250 A8 B254DL	(4)	
S 2211	EP/RSV 300-1150 A4 B254DL	(5)	
S 2211Z	EP/RSV 300-1150 A4 B254DL	(6)	

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	4,9 - 5,5	0,4	2	3	6
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1300 AB 575 DL (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	
550	15,7-16,3	550	16,0	1300	13,6-14,0	500	0	100	6,2-8,1	750	15,8-16,0
	Breakaway not before n = 1310			1330	7,0-12,3			200	4,8-6,8	900	15,1-15,4
				1350	0 - 9,5			300	2,0-4,5		
				1410	0			400	0	1100	14,0-14,3

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm		
(1) 1300	61,5 - 63,5		500	1100 800 500	59,0 - 62,0 63,0 - 67,0 57,5 - 61,5		100	ca. 18 mm RW

Checking values in brackets

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The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Control-lever deflection in degrees		Lower rated speed rev/min		③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	Control rod travel mm	Control rod travel mm
RQV 250-1300 AB 612 DL (2) (PRG...054 note)						ca.10	**				
ca.66	1300	15,0-16,4					100	6,6-8,0	1300	0	
	1350	9,9-14,6	**				300	4,2-6,5	1000	0,5-0,7	
	1400	4,6-10,8	Dimension a = 1,2 mm				450	2,7-3,8	550	1,1-1,3	
	1450	0 - 6,6					600	1,6-3,1			
	1530	0					840	0			
RQV 250-1300 AB 666 DL (3)						ca.10	**				
ca.66	1300	15,0-17,8					150	6,6-8,0	1300	0	
	1350	11,0-14,9					300	4,6-6,8	1000	0,6-0,8	
	1400	6,6-11,8					450	1,6-3,2	600	1,1-1,3	
	1470	0 - 10					600	0,6-1,8			
	1580	0					770	0			
EP/RSV 300-1250 A8 B254DL (4)											
ca.61	1250	16,0				without auxiliary spring	ca.22	300	6,0	1230	0
	1300	11,4						100	19 - 21		
	1340	6,6						300	5,7-6,3	1000	0,4-0,6
	1320	7,2-10,3						450	2,8-4,4		
	1380	3,2- 5,0						680	0 - 1	500	0,4-0,6
	1540	0 - 1									
EP/RSV 300-1150 A4 B254 DL (5) (6)											
ca.73	1150	16,0				without auxiliary spring	ca.28	300	6,0	1130	0
	1200	9,2						100	19 - 21		
	1220	6,0						300	5,7-6,3	800	0,7-0,9
	1200	7,5-10,6						400	2,9-4,4		
	1250	2,3- 4,6						580	0 - 1	500	0,7-0,9
	1350	0 - 1									

Testoil-ISO 4113**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Control-lever deflection in degrees		Lower rated speed rev/min		③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	Control rod travel mm	Control rod travel mm

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)			⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④e Idle stop	
rev/min	cm³/1000 strokes	3	Note: changed to ...)	rev/min	4	cm³/1000 strokes	6	7	8	rev/min	cm³/1000 strokes	Control rod travel mm
(2,3)	1300	61,5-63,5		1320	1100	59,0-62,0		100	ca.18mmRW	To be specified by customer (→ 666DL)		
					800	63,0-67,0						
					500	57,5-61,5						
(4)	1250	68,0-70,0		1270	500	65,0-68,0						
(5)	1150	68,0-70,0		1170	800	74,0-77,0						
(6)	1150	66,5-68,5		1170	500	69,0-72,0						
					800	71,0-74,0						
					500	66,0-69,0						

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 PEN 4,7 b

Edition 4.64

En

PES 6 A 75 B 320 RS 394, z EP/RSV 200-1000 A 4 A 330 supersedes 3.8.61
C 320 RS 2049 z A 330z company Penta
C 320 RS 2080 z engine MD 47 A

Test with EFEP 35 C (B-line)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 + 0,1 mm (from BDC) RW 18

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	3,7 - 4,0	0,2			2,8* (max. 2,4-3,0)
	6	0,1 - 0,5				
	9	0,8 - 1,6				
200	9	1,0 - 1,7				

Adjust the fuel delivery from each outlet according to the values in []

*

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
ca .69	1000	16	without auxiliary spring	ca .30	200	6,5
	1050	11,7			100	19 - 21
	1100	6,4			200	6,2-6,8
2a	1050	11 - 13	with auxiliary spring		300	2,6-4,5
	1080	7 - 10			400	0 - 1,5
	1150	0,7-3,9			500	0 - 1
	1250	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp 40°C (104°F)	6	Rotational-speed limitat Note changed to .. rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
800 "z"	37,5 - 38,5	1010-1030	200 dispersion max. 1,2					200	6,5
800	41,5 - 42,5		1100 dispersion max. 3						
* In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.									

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 200-1000 A4 A 330 z

① Upper rated speed rev/min			Intermediate rated speed			④ Control-lever deflection in degrees		Lower rated speed rev/min		③ Torque control rev/min	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11	
ca. 52	1000 1020 1040	16 11,8 6,4	without auxiliary spring			ca. 17	200 100 200 300 350 410	6,5 19 - 21 6,2-6,8 2,3-4,2 0 - 2,7 0 - 1	980 420 250	0 0 1,2-1,8	
②a	1030 1060 1100 1130	7,2-10,6 3 - 4,2 0,3 - 2,1 0 - 1	with auxiliary spring								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery		⑤	④a Idle stop
rev/min	cm³/1000 strokes	Note: changed to ...) rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

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Test Specifications

Fuel Injection Pumps 1A

and Governors

40

VDT-WPP 001/4 HEN 5,4 h
Edition 11.64

En

PE 6 A 70 B 412 RS 146 EP/RSV 200-1200 A 1 A337 D
V 4899 D

supersedes
company
engine

1.59
Henschel
512 DJP/100

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,4 + 0,1 mm (from BDC)
Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,7 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm	
1	2	3	7	8	9	10	
ca.65	1200	16	without auxiliary spring	ca.24	200	6	1180 0
	1250	10,4			100	19 - 21	1000 0
	1290	5,2			200	5,7-6,3	800 0,5-0,7
	1250	7 - 12			300	3,8 - 5	550 0,9-1,1
	1300	3 - 6,5			400	0,5-3,5	
	1350	0 - 3	with auxiliary spring		550	0 - 1	
	1450	0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop	6	Rotational-speed limitat	3a	Fuel delivery characteristics	Starting fuel delivery	5	4a	Idle stop
rev/min	Test oil temp 40°C (104°F)	2	Note changed to) rev/min	4	cm³/1000 strokes	Idle rev/min	7	8	Control rod travel mm
1	cm³/1000 strokes	3		5		6	7	8	9
1180	55,0 - 57,0		1210-1230	500	55,4 - 58,5			200	6
				1000	55,5 - 58,5				

Checking values in brackets*

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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(3)

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 HEN 5,4 g (5,4h)
Edition 11.64

En

PE 6 A 70 B 412 RS 114
75
1009
1184EP/MZ 80 C 79/2 L
37/2
133/2supersedes 1.59
company Henschel
engine 512DG 6 R 1012 G
512DGP
522DG 6 R 1013 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Torque control travel mm	Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
1	Vacuum mm water col	pressure drop	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
500-480	10			800	4,7-5	200	20,8-21,3	370	17,3-20,6	700	4,7- 8,8
						800	4,7-5,0	1800	1,9-3,1		
control rod travel test (cols. 4-11) = rotational speed 500 rev/min adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**											

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics						idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm³/1000 strokes	
rev/min	Vacuum mm wat. col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	rev/min	Vacuum mm wat. col	cm³/1000 strokes	7	Vacuum mm wat. col	8	
1000		59,0-61,0										

Checking values in brackets

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K22

K22

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

VDT-WPP 001/4 HAN 2,8r

Edition 8.66

En

PE 4 A 65 B 310 LS 112, 416 RQ 200/1400 A58, 134,570

112z*

112y**

1017

1017z*

A 406,442

1017, 1017z EP/RSV 300-600-1400A5A129 ./.

supersedes 10.64

company + HAN 2,8r1

engine Hanomag

D 28 LA

*D 28 LAS

**D 28 LAS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
	18	9,7 - 10,6				
200	6	0,8 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

Testoöl-ISO 4113

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
500	15,7-16,3	500	16	1400 1420 1460 1500 1540	15,8-16 10,4-16 2 - 10,5 0 - 5,2 0	530	0	200 300 350 400 430	7,6-8,6 4 - 6,6 0,4-4,4 0 - 2 0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	Control rod travel mm
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2		4	5	6	7
1000	55,0 - 57,0		1000			
1000	58,5 - 60,5		1000			
1000	40,0 - 41,0		1000			

Checking values in brackets

K23

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The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 300-600-1400 A 129

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.65 (2a)	1400	16	without auxiliary spring	ca.22	300	6	1380	0	530	0
	1500	7,5			100	19 - 21	350	1,2-1,8	300	5,7-6,3
	1530	4,3			400	2,5- 4	500	0 - 1,8	600	0 - 1
	1480	8 - 10,5			Set intermediate speed stop n = 500					
	1500	5,5- 8,9								
	1580	1,1- 3,3	with auxiliary spring	ca.22						
	1700	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm
rev/min 1	cm³/1000 strokes 2	3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9
1380	41,0-43,0	1410 - 1430					500	
z								
1380	59,0-61,0	1410 - 1430						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference (1)
Gauge pressure = bar	Gauge pressure = bar	bar	mm

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

K24

K24

Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 IHC 2,2i (2,2k)

Edition 12.64

En

PES 4 A 60 B 420RS 105 EP/RSV 250-950 A 4/17 D
RS 105 Z

supersedes 12.62
company I H C
engine DD 132
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,7 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca.55	950	16	without auxiliary spring	ca.22	250	5,5	930	0	0,6-0,8	0,6-0,8
	980	12			100	19 - 21	700	0,6-0,8		
	1020	5,4			250	5,2-5,8	300	0,6-0,8		
	1000	6 - 10,4			350	2,5-4				
	1050	2 - 4	with auxiliary spring		450	0 - 2				
	1100	0 - 2			550	0 - 1				
	1150	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)	rev/min	cm³/1000 strokes	6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle rev/min	5 cm³/1000 strokes	4a Idle stop Control rod travel mm
				4	5			
930	Z	29,0-31,0	960	500	29,0-32,0	930	0	0,6-0,8
				700	31,0-32,0			
930	Z	37,5-39,5	960	500	37,5-40,5	700	0,6-0,8	0,6-0,8
				700	38,5-41,5			

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications

Fuel Injection Pumps **1A**

and Governors

40

VDT-WPP 001/4 IHC 2,2 k
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250 - 1200 A 4/18
LS 105 Y - 1250 A 4/18

supersedes 1.63
company I H C
engine DD 132
 DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca .72	1250	16				ca .22	250	5,5	750	0
	1280	10,6	without auxiliary spring				100	19 - 21	400	0
	1310	3,6					250	5,2-5,8	290	1,2 - 1,8
(2a)	1280	9 - 12	with auxiliary spring				300	3 - 4,5		
	1300	2,4- 8					350	0 - 2,8		
	1350	0 - 2					450	0 - 1		
	1400	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
750	32,5 - 34,5		1210				
Y							
750	34,5 - 36,5		1260				

Checking values in brackets

* 1 mm less control rod travel than col 2

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L2

L2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,6 1 1

Edition 3.64

En

PES 6 A 70 B RS 64
RS 64 z*

RQV 250-350/1500 A 139

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312
OM 321*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in □.

B. Governor Settings

Upper rated speed Degree of deflection of control lever Control rod travel mm	rev/min	Control rod travel mm	①a ②a	Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
				④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
62+1,5	1500	15 - 18	④2+1,5	300	14,7-15,3		③a	250	6 - 8		
	1550	9 - 14		400	9,5-15			300	4 - 7		
	1600	2,6-9,8		500	3 - 4			350	1,5-4,5		
	1650	0 - 5,5		1250	3 - 4			430	0		
	1710	0		1430	0						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed ②b ④b	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel Control rod travel mm ⑤
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
1000	43,5-45,4	1510 - 1530			100	mind. 7,9
* 1000	49,5-51,5					350

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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L5

L5

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,61(4,61 1)

Edition 3.64

En

PES 6 A 70 B 410 RS 64

RQV 250-650/1400 A 139

supersedes 4.56
company: Daimler-Benz
engine: OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Intermediate rated speed			Lower rated speed			Sliding sleeve travel			1	
	Control rod travel mm	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	
1	2	3	4	5	6	7	8	9	10	11	1
65±1,5	1400 1420 1500 1580 1670	15 - 18 13 - 16,8 6,3 - 11,5 0 - 6,2 0	54±1,5	650 700 800 1400 1510	15 8 - 13,2 2,7-3,4 2,7-3,4 0	10±1,5	100 200 400 500 580	6,5 - 8 5,6-7,6 2,5-4,7 0 - 2,4 0			
						3a					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	8
1380	46,5-48,5	1405 - 1420				650

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L6

L6

① Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,6 x 1

Edition 3.64

En

PES 6 A 70 B 410 RS 64 RQV 250-1450 A 140 D
RS 1034

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
66±1,5	1450	15 - 18						10±1,5	200	5,6- 8	1450	0	
	1500	11 - 15							250	4,4-6,8	1200	0,5-0,7	
	1550	6,5-12,5							350	3,6-4	800	0,8-1,0	
	1630	0 - 7							600	2,4-4	500	0,8-1,0	
	1730	0							800	0,6-2			
									950	0			
								③a					

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥	Torque-control ⑤	
rev/min	cm³/1000 strokes	rev/min	high idle speed ⑤b	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1000	45,5-47,5	1455-1470	500 700 1450	45,5-49,5 46,5-49,5 46,5-49,5	100	mind. 7,9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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L7

② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

VDT-WPP 001/4 DAI 8,3b

Edition 3.64

En

PES 6 A 80 B 410 RS 64
 RS 64 z
 C RS 1034

RQ 250/1075 A 83D

A 148 D

supersedes 15,7.61
 company: Daimler-Benz
 engine: OM 315
 (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	5,6 - 6,0	0,4			
	6	2,4 - 3,0				
	15	11,8 - 12,8				
200	6	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check	Control rod travel rev/min	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
		1075	14,8-15		100	7 - 8,2	400	16 - 21			
		1120	3 - 10,8		250	4,3 - 6,6	450	16 - 16,6			
		1160	0 - 5		350	1 - 3,5	500	15,9-16,3			
		1190	0		430	0	650	15 - 15,1			
1000	14,6-15,4	1000	15								

Torque-control travel 0,3 mm on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
RS64 1000	95,0-97,0	500	500 700 1050	93,0-97,0 92,0-96,0 95,0-98,0	100	mind.13,4

Checking values in brackets

L8

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LP

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7

RS64Z

1000	71,0 - 73,0	400	700	67,0 - 70,0	100	mind. 13,4
			1050	71,0 - 74,0		

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,1 g

Edition 3.64

- 6 -

PES 6 A 70 B 410 RS 64,z RQV 300-700/1500 A 207 D
C 410 RS 1034,z A 208 D
AA 207 D

supersedes 10.62
company: Da imler-Benz
engine. OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,9 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1	2			2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	⑮	Degree of deflection of control lever		Control rod travel	⑯	Degree of deflection of control lever		Control rod travel	⑰	rev/min	mm
	Control rod travel mm	rev/min	⑯		rev/min	mm	⑯		rev/min	mm	⑯		mm
66+	1500	15 - 18		44+1,5	650	9,7-10,3		10+1,5	200	6,2- 8		3a)	1500
	1550	10 - 14,5			800	3 - 8,5			300	5,3-7,8			750
	1600	4,8 - 10,8			900	3 - 4			450	3,5-6			600
	1650	0 - 6,8			1250	3 - 4			600	0,4-3,3			500
	1730	0			1440	0			730	0			350

Torque control travel = 0.5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics	Starting fuel delivery	Torque-control travel			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	idle switching point	rev/min	travel mm	
1	2	3	4a	5	6	7	8	9
1000	49,5 - 51,5	1510-1530	500 700 1500	51,0-54,0 51,0-54,0 50,5-53,5	100	mind.7,9	700	./. .

Checking values in brackets

- 1 mm less control rod travel than col. 2

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BOSCH

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		P.rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4	5	6	7
1000	43,5-45,5	1510	-	1520		500	45,5-48,5
						700	42,5-45,5
						1500	46,5-49,5
						100	mind.7,9
							700

L11

En

L11

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 8,3 t

Edition 3.64

En

PES 6 A 90 B 410 RS 174 RQV 250 - 900 A 112

supersedes
company:
engine.

1.61
Daimler-Benz
OM 315 mA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
1000	9	5,9 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in □.

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm 3	① Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④ Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③ rev/min 10	mm 11	
65+1,5	900 920 960 1000 1060	15 - 18 12 - 15,4 5,2 - 10,6 0 - 6,2 0	②a ②b ④a ③a ③b			10+1,5	100 250 350 500 640	7,6-8 5 - 7 3,4-4,2 1,6-2,8 0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b rev/min 3		Fuel delivery characteristics high idle speed ⑤a rev/min 4		Starting fuel delivery Idle switching point ⑥ rev/min 6		Torque-control travel Control rod travel mm 5 rev/min 8	
rev/min 1		rev/min 4a		rev/min 6		rev/min 8		cm³/1000 strokes 9	
900	101 - 103		910 - 930						

Checking values in brackets

* 1 mm less control rod travel than col. 2

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(2) **Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

VDT-WPP 001/4 DAI 5,1d
Edition 3.64

En

PES 6 A 70 B RS 64 RQ 250/1500 A 146 D, 302 D
 RS 64 x, RS 64 y
 RS 64 z, RS 64 w
 RS 317
 RS 1034

supersedes 3.1.61
 company: Daimler-Benz
 engine: OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1450	14-14,8	1450	14,4	1500 1520 1560 1600 1630	14,2-14,4 10 -14,4 0 -10 0 - 5 0	530	0	150 200 300 400 430	7 - 8 6 - 8 3,3-5,8 0 - 1,7 0	400 500 600 800	16 - 21 15,4-16 15 - 15,4 14,4-14,6

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel mm	
1	2	4	5	6	7				
See page 2!									
.. .									

Checking values in brackets

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	RQV RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3		4		6	
<u>RS 64</u>							
1000	49,0 - 51,0		500	500	51,0 - 54,0	100	mind. 7,9
				700	51,0 - 54,0		
				1480	50,5 - 53,5		
<u>RS 64 x</u>							
1000	43,8 - 45,8		500	500	45,8 - 48,8	100	mind. 7,9
				700	45,8 - 48,8		
				1480	45,3 - 48,3		
<u>RS 64 y</u>							
1000	31,5 - 33,5		500	500	33,0 - 36,0	100	mind. 7,9
				700	33,0 - 36,0		
				1480	32,0 - 35,0		
<u>RS 64 z</u>							
1000	35,5 - 37,5		500	500	37,5 - 40,5	100	mind. 7,9
				700	37,5 - 40,5		
				1480	37,5 - 40,5		
<u>RS 64 w</u>							
1000	51,5 - 53,5		500	500	53,0 - 56,0	100	mind. 7,9
				700	53,0 - 56,0		
				1480	53,5 - 56,5		

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAI 7,3 e
Edition 3.64

En

PES 6 A 80 B 410 RS 64 RQ 250/1075 A 19 D *
RS 64 z RQ 250/1100 A 19 D **
RS 1034

supersedes
company:
engine:

3.1.61
Daimler-Benz
OM 325

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 250/1075 A 19 D *

Checking of slider PRG check		Full-load speed regulation					Idle speed regulation					Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12		
1000	14 - 14,8	1000	14,4	1075 1100 1140 1190	14,2-14,4 8,6-13 0 - 7,4 0			150 250 350 430	7 - 8 5 - 7 1,3 - 4 0	400 600 800	16 - 21 15,5-15,8 14,9-15,2		

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	7				
RS 64										
1000	75,0 - 78,0		700	700 500	74,5 - 76,5 71,5 - 75,5					

Checking values in brackets

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B. Governor Settings

RQ 250/1100 A 19 D **

DAI 7,3 e

-2-

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		Control rod travel rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	rev/min			
1	2	3	4	5	6	7	8	9	10	11	12
1000	14,4-15,2	1000	14,8	1100 1130 1160 1220	14,4-14,8 7 - 13 0 - 9 0	540	0	200 250 350 440	6 - 8 5 - 7 1,5- 4 0	500 700 900	15,8-16 15,4-15,7 14,8-15

Torque-control travel
on flyweight assembly dimension a =

0,4

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm	
RS64Z				500	500 700	53,0 - 57,0 54,5 - 57,5	100	mind. 13,4
1000	56,3 - 58,3							

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel rev/min	Control rod travel mm
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		Control rod travel mm	rev/min			
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm

Checking values in brackets

Testoil-ISO 4113

L18

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② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 8,0 n

Edition 3.69

En

PE 6 A 75 B 420 LS59, 153, 1036	RQ 250/1150 A239D (1)	supersedes 9.67
PE 6 A 75 C 420 LS 1036 Z	RQ 250/1150 AB143D (2)	company: K H D
PE 6 A 85 B 420 LS422,2039	RQ 250/1150 A235D A432D (3)	engine: F6 L514(125PS)-(1) F6 L514(115PS)-(2) BF 6 L514(150PS)-(3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1(7,5) mm (from BDC) 2,15 + 0,1(8,5)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	7,5 3	4	2	8,5 3	6
	9	3,2 - 3,7	0,4		5,0 - 5,6	
1000	6	0,9 - 1,7			1,4 - 2,2	
	15	8,5 - 9,5			12,4 - 13,2	
200	9	1,9 - 2,8			3,9 - 4,4	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

..A239D (1)

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
500	15,7-16,3	500	16	1150 1160 1180 1190 1230	13,2-13,8 9 -13,6 0 -11 mind. 6 0	430	0	200 250 290 330	6,5- 8 3,5-6,5 0 - 3 0	600 800 1000	15,9-16 15,2-15,7 14,2-14,6

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	Control rod stop	Fuel delivery characteristics			Starting fuel delivery Idle speed	Control rod travel mm	
		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes		
1150	67,0 - 69,0	600		600 1000	75,5 - 78,5 70,5 - 73,5	100	mind. 9,9

Checking values in brackets

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B. Governor Settings

.. AB 143 DR (2)

KHD 8,0 n

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
500	15,6-16,4	500	16,0	1150 1180 1220 1250	13,9-14,1 3,8-12,0 0 - 5,4 0	430	0	200 250 300 330	6,4-8,1 3,8-6,8 0 - 3,4 0	600	15,8-16,0 800 15,2-15,6 1000 14,5-14,8

Torque-control travel
on flyweight assembly dimension a = 0,6 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	6	rev/min	cm³/1000 strokes / mm	Control rod travel
1130	65,0 - 67,0		600	600	71,0 - 74,0		100	mind. 9,9	

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

.. A 325 D, .. AA 432 D (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel	rev/min
1	2	3	4	5	6	7	8	9	10	11	12
1050	14,4-15	1050	14,7	1150 1160 1180 1200 1240	14,3-14,7 11,0-14,7 5,0-12,0 0 - 8,0	440	0	200 250 300 340	7,0-8,1 4,2-7,0 0 - 3,2 0	500 650 800	15,9-16,0 15,2-15,6 14,7-14,8

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics				Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	6	rev/min	cm³/1000 strokes / mm	Control rod travel
1150	80,5 - 82,5		600	800 500	82,5 - 85,5 80,5 - 83,5				

En Checking values in brackets

L20

L20

② Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 9,8 c
Edition 5.72

En

PE 6 A 85 B 310 LS 69, 172
(312)..S191, 312, 337
C..S2044, 2084
C, D .. S2084

RQ 200/950 A103D, 124D
.103D, 244D, 328D
.244D, 328D, 482D

RQV 200-500/950 AA 462

supersedes 10.64
company: Büssing
engine: U 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery, B. u. "C" cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery "D" cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	9,6 - 10,4	0,4	9	4,1 - 4,5	
	9	4,9 - 5,5		6	0,6 - 1,4	
	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in

RQ.. 103D, 124D, 244D, 328D, 482D

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16,0	970 990 1010 1050	13,8-14,1 5,0-12,5 0 - 8,0 0	430	0	100 180 250 330	6,8-8,1 5,2-7,4 2,4-5,0 0	400 600 800	15,6-16,2 14,9-15,3 14,1-14,4
Breakaway not before n = 970											

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel mm
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
950	97,0 - 99,0	500	700 500	100,5 - 103,5 107,5 - 110,5	100	mind. 13,4
(increase by $\pm 1,0$ cm ³)						.

Checking values in brackets

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B. Governor Settings

RQV .. AA 462

1

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rev/min ①a	Degree of deflection of control lever	rev/min ②a	Control rod travel mm ④	Degree of deflection of control lever	rev/min ③	Control rod travel mm ⑤	rev/min ⑥	mm ⑦
1	2	3	4	5	6	7	8	9	10	11
ca. 66	950	15,0-17,8	ca. 54	480	14,7-18,0	ca. 10	100	6,1-8,0	-	-
1000	8,8-13,6			550	3,0-12,0		200	4,7-7,2		
1060	0 - 7,6			650	2,5- 3,5		300	2,4-5,0		
1140	0			900	2,5- 3,5		450	0		
				1030	0					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
930	103,5 - 106,5	960						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-difference
	Gauge pressure = bar	Gauge pressure = bar	mm
En			